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ABSTRACT

This document presents the conference proceedings of the primary stakeholders in gifted education in Alberta (Canada): "Activities in Math for the Gifted Student" (Ballheim); "The Self Awareness Growth Experiences Approach" (Balogun); "Computer Simulations: An Integrating Tool" (Bilan); "The Portrayal of Gifted Children in Children's Books" (Brydges); "The Artifact Box Exchange Network" (Chmiliar); "Differentiating for Gifted and Talented: School Library Programs in Transition" (Crawford; Maynard); "The Fine Arts in Global Education - A Greek Study" (Dusterhoft, And Others); "Does Canada Care for the Gifted Student?" (Goguen); "Giftedness in the Regular Classroom" (Green); "Kid's Network: Researching the World" (Gursky); "Skemp Activities for the Intelligent Learning of Mathematics" (Harrison); "The Role of Academically Talented Students in Moral Education and the Development of the Caring School (Is Morality Caught or Taught?)" (Haydn-Jones); "Classrooms with Growing Room" (Kanevsky); "Lessons Without Limits" (Kanevsky); "Multimedia Technology and Kid TV: A New Approach to Learning" (Katz; Pyryt); "Who Benefits Most from Shad Valley?" (Keenan); "The Structure of Intellect Model (SOI): Overview and Resources" (Lavers); "Coming Together at G.A.T.E." (Lee; Ruysenaars); "Coping Strategies of Successful Canadian Women" (Leroux); "Gifted, Special and Inclusive Education: Past, Present and Future Promise" (Lupart); "Gifted Education at Adolescence" (Matthews); "O.M.--Odyssey Of The Mind A Creative Approach to Education" (May; Baker); "Young Gifted Learners in a Multicultural Society" (McPhee); "Affective Characteristics of Gifted Individuals as a Guide for Selection of Counseling Techniques" (Mendaglio); "Feeling Bad Can Be Good: Using Dabrowski's Theory to Reframe Gifted Children's Adjustment Difficulties" (Mendaglio; Tillier); "Career Development for the Gifted and Talented" (Pyryt); "Using Art as an Identification Tool for Gifted ESL" (Samber); "Attitudes Towards, Preferences For, and Knowledge of Computers Among Gifted and Average Junior High Children" (Singh); "'Where Are the Wise Women?' A Reflection on the Issues Surrounding the Educational Experience of Gifted Girls" (Smyth); "School-Wide Enrichment Centres" (Wakaryk; And Others); "Successful Learning Strategies to Use With Gifted Learning Disabled Students" (Wees); and "Gender Issues in Education" (Yewchuk). (AA)

IMAGES IN TRANSITION
1992

CONFERENCE PROCEEDINGS

3rd Annual SAGE Conference
The Society for the Advancement of Gifted Education
and
6th Canadian Symposium on Gifted Education

IMAGES IN TRANSITION
1992

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IMAGES IN TRANSITION

3rd Annual SAGE Conference
6th Canadian Symposium on Gifted Education

The Society for the Advancement of Gifted Education (SAGE) is an umbrella organization consisting of the primary stakeholders in gifted education in Alberta: the Centre for Gifted Education (CGE) at The University of Calgary, the Gifted and Talented Education Council (GTEC) of the Alberta Teachers' Association, the Educational Response Centre (ERC) of Alberta Education, and the Alberta Associations for Bright Children (AABC).

The 3rd Annual SAGE Conference with a theme of *Images in Transition* was held in Calgary, September 24-26, 1992. A unique feature of this year's conference is the integration of the 6th Canadian Symposium on Gifted Education into the SAGE Conference. Previous Canadian Symposia have been held in Toronto, Regina, Vancouver, Winnipeg, and Moncton. The Conference Planning Committee was delighted by the representation from across Canada. In addition to Alberta, there were presenters from Ontario, New Brunswick, Manitoba, and British Columbia.

The major focus of the Conference was to explore "state-of-the-art" knowledge regarding Canadian policies and legislation, curriculum development, career development, counselling issues, technology and parenting issues as they relate to the unique needs of gifted and talented individuals. All presenters were requested to provide brief summaries of their presentations for the Conference Proceedings.

We are pleased to provide this document, which represents summaries of 32 conference sessions. For those participating in the 3rd Annual SAGE Conference/ 6th Canadian Symposium, we hope these Proceedings capture the spirit of the conference. It should be noted that detailed papers of two of the keynote sessions appear in the Fall 1992 AGATE (Journal of the Gifted and Talented Educational Council of the Alberta Teachers' Association).

We are grateful to our sponsors: The University of Calgary Special Projects Fund, Petro Canada, Co-Op, and AGT/Telus. We hope you find these Proceedings informative.

Michael C. Pyryt
Yarmilla Dvorack
Conference Co-Directors

CONFERENCE PROCEEDINGS
1992
3rd Annual SAGE Conference
6th Canadian Symposium on Gifted Education

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Activities in Math for the Gifted Student

Cynthia Ballheim
Calgary Catholic Schools

SUMMARY

Over the years, there have been many changes in the teaching of mathematics. No longer do students sit at desks and practice 900 of the same kinds of problems. Likewise, no longer are the teacher and the textbook sole dispensers of knowledge. Students are now actively involved in the discovering, practising and communicating of mathematical ideas and concepts. Computers, calculators, manipulatives, diagrams, posters, analogies, stories, arguments, and dramatizations are now becoming common in the mathematics classroom.

This session focused on the use of many mathematical activities that move beyond the traditional classroom approach. The major focus of all of these activities is to sell students on math, to have them buy into their mathematics education, to create favourable dispositions toward the study of math, and to generally make the mathematics classroom a fun place to be. These activities challenge the "honours" student, force them to use mathematics as a tool for communication and provide a forum for the establishment of decision-making skills. Mathematics, as a result,,becomes a valuable part of the real world and a recognized necessity of life. This list, although not exhaustive, gives the flavour of the presentation. Further information in any of these can be obtained by writing to the presenter.

1. **Math Prompt**

2. **Questioning Techniques**

- Open Ended Questions
- Discovery Lessons - Remainder Theorem, Chain Rule
- Key Words Used for Questioning:

Verify	Classify	Describe	Interpret	Justify
List	Compare	Discuss	Analyze	Review
Invent	Criticize	Explain	Outline	Examine
Research	Define	Illustrate	Trace	Summarize

3. **Student Reports**

- Essay on the Beginnings of Calculus
- Trial on "Who Really Invented Calculus"
- How New Technologies Such as Graphing Calculators will Affect Math Understanding
- Math Hunt for People Who Use Math in Their Everyday Life
- Comparison Between English & Mathematical Definitions for Math Terms
- Test Bank Which Allows Students to Author Their Own Test Questions
- Math as Related to Other Fields of Study
- Review Cards
- Polynomial Search

4. **Student Self-Reports**

   - Class Logs
   - Journals
   - Math Pen Pals
   - Math-O-Grams

5. **Examples of Other Presentations, Projects, or Activities**

   - Peer Tutoring
   - Cross-Disciplinary Themes
   - Parent Involvement
   - Math Review Poems
   - Panel Discussion on "Where's my Focus"
   - Doctors Dissecting the Various Conic Sections
   - The Dance of the Trig Functions
   - Math Fantasy in the Land of Differentiation
   - Puppet Show Explaining the Volumes of Solids by the Shell Method
   - "Cheat Sheet" or "Ticket To Exam"

The Self Awareness Growth Experiences Approach

Genevieve Balogun
Calgary Board of Education

The Self
Awareness
Growth
Experiences Approach

The SAGE -- Self Awareness Growth Eexperience -- approach in education is becoming increasingly important as we attempt to provide effective education for our students. We have always known that it is the whole child, not just his brain, that comes to us. S/he does not check his anger, happiness, frustration, joys, hunger, fatigue, excitment...and whatever other baggages s/he owns at the classroom doors. Instead, such baggages also check in and have great impact on our learning environment...be it intentionally or unintentionally. I am convinced that each student's successes can and will be enhanced to the degree that s/he becomes more self aware about such "baggages" and uses that knowledge to orchestrate her/his life (school being just one component). As a result, my sage approach is a metacognitive approach.

Metacognition or thinking about your thinking refers to the 'awareness of' as well as the actual 'control of' your cognitive processes. Furthermore, metacognition can be conceptualized as having three basic, interactive components or elements which I have termed the 3 R's of metacognition (figure 1):

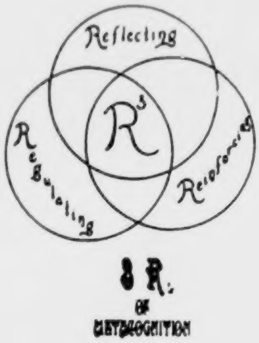

figure 1

Reflecting : thinking about what you know, about what you need to know, becoming very self-aware;

Regulating : using what you know to plan, to execute, to monitor, and to evaluate thought, language, and behaviour;

Reinforcing : responding in an affective manner to your reflecting and regulating such that thought, language, and/or behaviour is reinforced, be it positively or negatively.

This latter aspect is most critical. As Paris and Winograd (1990) point out

> Cognitive evaluations are rarely dispassionate assessments. If children are asked, "Are you a good reader?"...they might be proud or embarrased by their own answers. Flavell (1985) referred to the emotional accompaniments of cognitive self-appraisal as "metacognitive experiences." They color what students think [know] about themselves as learners with emotions, such as doubt, shame, and helplessness, or confidence, pride, and self-assurance (p. 9).

Fox and Mallan (1983) support such a conclusion. They tell us that there is a great deal of research findings stressing the importance of a student's self-concept and self-esteem and the relationship between the student's self-knowledge and feelings of self-worth and her/his academic achievements. According to these authors, research findings demonstrate that self-concept/self-esteem is a better predictor of school success or failure than either reading scores or IQ scores (p. 14).

Such findings support the need for personalizing education. We need to attend to the affective, behavioral -- sometimes biological -- as well as the cognitive domains of students (figure 2)...

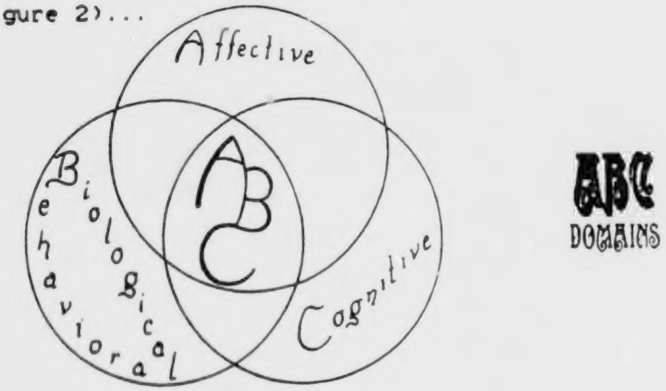

figure 2

AND WE CAN DO SO RELATIVELY EASILY.

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We can do so by differentiating our curriculae. We need to differentiate content, strategies, products, and evaluation (figure 3).

DIFFERENTIATION
of
CONTENT
STRATEGIES
PRODUCT
EVALUATION
by
KIND
BREADTH
DEPTH
PACE
with relevance to
NEEDS
ABILITIES
INTERESTS
ASPIRATIONS
to encourage learners to function with competence

figure 3

As stated before, doing so is relatively easy. Many resources telling us the 'why' and 'how' of doing so are readily available to us (see sample references). More importantly, even if it was a difficult task, it is still very important that we "go for it." As a member of my audience pointed out ever so succintly,

"EFFECTIVE EDUCATION IS AFFECTIVE EDUCATION."

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Computer Simulations: An Integrating Tool

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Computers have played a significant role in public education for at least the last decade. Many schools in Alberta purchased significant numbers of Apple II computers at the beginning of the 1980's through provincial subsidy programs. These computers were able to perform computer assisted instruction, if the content being addressed was knowledge based, and presented in a drill and practice format. Rapid changes in personal computers technology at the beginning of the decade, promises made by software creators, and a lack of imagination on the part of school system administrators and provincial legislators, left many educators with the impression than an education revolution had begun.

Personal computers provided the teacher with another instruction tool. Given the limitations of the hardware and software, teachers had difficulty using the tool as more than just a drill and practice device. The computers were too slow, and the software resembled the electronic equivalent of a book. Many promises were made, and few were realised. This has left many educators disappointed and many administrators hesitant to commit new funds to a rapidly evolving technology.

During the first two years of this decade, the power to price ratio of computer technology enables us to now buy five computers for the same price of one in 1983, plus processing speed has increased one hundred fold. We now have affordable computers that are capable of creating interactive virtual realities. Many of the computer based instructional desires of the early 1980's can now be realised. The personal computer is now capable of receiving, modifying and delivering text, audio and video on one platform. It is capable of integrating multimodal methods of delivery and of acting as an interactive exploratory medium. This is primarily the result of the change in philosophy by designers of computer systems in the mid 1980s.

In 1984 the MacIntosh computer was introduced. It set the standard for graphical user interfaces, (desktop icons, pull down menus, scroll bars, and no command line) that are now familiar to user of the Mac, and to Windows users.

The MacIntosh has changed the way we write and edit documents, and create drawings. It has had a direct impact on teaching the writing process. In this world the writer is given the 'what you see on the screen is what you get in print' ability. This applies to the formatting of text and to adding visuals to the body of the text. Word processing programs now lend themselves to teaching methodologies that focus on revision, collaboration, and publication. Following in this innovative tradition, the MacIntosh has now given the writing community a new type of document called the *dynamic document*. This document, still created by a word processor, is enabled, so that it can incorporate and play back time-based information, such as sound and video sequences. This will create a new way of writing, and should place many more MacIntoshes in our schools. Recently, similar technical advancements and reduction in costs also placed large numbers of DOS-based machines into schools. While these machines are less expensive when initially purchased, enabling them to produce sound and video on screen requires a greater investment in hardware and software. In the long term, this makes MacIntosh computers less expensive.

Increases in computer processing speed have enabled us to create dynamic documents, which are multidimensional. Instructional software, and role playing or gaming software , has also changed as the result of having greater procesessing power available. Gaming software is becoming more difficult to distinguish from instructional software because software producers have realised that modelling natural phenomena is just as engaging for users, as artificially created worlds. In the last two years, new software has used themes from our history and scientific models as the basis for interactive adventures. Simulation software, where the user has the ability to manipulate many variables and receive immediate feedback in a screen environment that reflects these changes, has become immensely popular. Simulation software is able to model natural, or man made events, with a high degree of sophistication and complexity.

Educational technologists and psychologists promote the role that computers play in presenting information and enhancing the student's recollection of facts. At the same time, they are critical of software producers, in that much of the software available for both educational and entertainment purposes does not address the need to develop observational, measurement and analysis skills. This may be true, but part of the problem was that the personal computer hardware necessary to present interactive and reasonably complex problems was unable to handle the number of calculations required per second to present and change screen based information in real time. This is no longer the case. Personal are now fast enough to handle the calculations required to change screen based information in real time. Software is now being created that presents the learner with realistic situations that are very good at imitating events, processes, and activities that happen in the 'real world'. This class of software is known as *Simulation software*.

Few classroom teachers have the time, interest, or resources necessary to create software of this sophistication. There are commercial programs that can be used effectively in the classroom to address higher order thinking skills. These programs have evolved to the stage where they challenge and engage the learner over time by becoming more challenging themselves.

Myself, Michele Jacobsen, and Jaggit Singh, all of us teachers, have spent the last year exploring the possibilities of using simulation software as an integrating tool in the classroom. I have been pleasantly surprised to find that this type of software is able to keep students of various abilities challenged and interested. I have also found that students who were passive learners became active learners inside and outside of the classroom.

Students from three school systems in and around Calgary volunteered to come to the university one night per week for four hours, (for six months) to "play" with simulation software. These students were in grades 5 to 10. The group was not homogeneous. There was an equal distribution of both males and females, which included students labelled by the school system as being gifted, educationally disadvantaged, and inner city high-needs students. They came from all walks of life. A typical classroom of students.

The curriculum in our program consisted of four simulation software packages, *SimCity*, *SimAnt*, *SimEarth* (Maxis), and *Civilization* (Microprose). These packages were produced in the last two years for commercial purposes and the authors of the software consider them to be gaming software. The students were introduced to the software in the order indicated above. After observing how the students interacted with *SimCity*, it was decided that *SimEarth* was probably too complex for this group.

Each week the students recorded their experiences in a personal log. New challenges and problems were introduced, and possible solutions were discussed each week. Students then spent the balance of the four hours engaged with a simulation.

Initially we found that the students used the tools that were available in the software to cause the rapid destruction of the cities, civilisations, colonies, or life forms. But they quickly became bored with these scenarios, and actively became engaged in seeking solutions to the simulation problems posed. Students spent considerable time accessing the online helps that were available in the software, reading the user manuals, and doing independent research. These simulations assumed a significant level of general knowledge in the areas of population and resource management, economic models and general scientific knowledge.

We found that the students actively sought out their peers to discuss problems during class time and to discover what innovative techniques each was applying to the simulation situations they encountered.

In discussing learning strategies with them, we found that their personal research generally addressed gaps in their own knowledge, information they perceived to be important to the successful completion of the simulation. No one advanced to the stage where they were in a position to finish the game. On the other hand, none of the students became discouraged by the fact that the end 'didn't appear in sight'. In total, each student spent approximately 60 hours at the university pursuing simulation goals, and for some, an undetermined number of hours at home or in their own schools pursuing solutions on computer.

All of the simulations operate from a rule base. For example *SimcCity* uses approximately 100 rules to assess new input, make changes and provide feedback. These simulations were chosen for a number of reasons. They were sufficiently complex so as to not lose the users interest, while at the same time they could be adjusted to the users experience and knowledge level. They addressed mathematical, scientific and social issues in a realistic manner. They were also content accurate.

All the simulations operated in real time. This means that when a change was made to one of the many variables, the results or the feedback was immediate. In most instances, the feedback occurred visually. The programs were not visually static. For example, in*Civilization* , cities appeared to grow overtime; caravans, diplomats, etc. could actually be seen travelling across the country. In*SimCity*, cars and light rapid transit trains followed a 24 hour cycle; city neighbourhoods changed density according to the time of day. Real time feedback and animation helped to maintain user interest. All of the simulations also presented feedback in numerical, graphical, or textual formats, and in many instances, the user could choose the form of feedback desired. The students were required to use concepts learned in social studies, science and mathematics, while they reported to the group and to each other using communication skills learned in language arts.

The problems presented by these simulations are multidimensional. The problems require factual knowledge to solve, but the application of this knowledge, the reactions both organic and procedural, of the 'bio-organisms' (ie: Sims that lived in the cities) and the larger simulation model, (ie: the city) have to be considered. Some understanding of social engineering also has to be applied.

Initially we thought that students and teachers would have difficulty with the"open endedness" of this type of software (participating teachers did, the students did not). Therefore, the fundamental concepts and user techniques of each program was presented in class. This was followed by the completion of one "game" by the group as a whole. After this introduction, the students were given the freedom to address the simulations in whatever manner they found to be successful. They learned very quickly how to decide which input variables to use and to what degree to make changes. We found that they all used a mixture of the available output forms, graphs, numbers, and text based information, to assess the effectiveness of their decisions.

Teacher concerns in using this type of software in the classroom are many. The most important revolve around issues of control. In this type of learning environment, teachers are not in control of the learning, nor are they in control of the content or curriculum. It is difficult to address learning objectives and measure outcomes when each student is learning at a different rate, addressing different problems, and arriving at different solutions. This type of environment does not limit the tools available to the student. We thought that the students might have difficulty with the open-endedness of the software. It was impossible to limit the tools the students had access to. The programs were not designed with that utility in place. The students had no difficulty with the scope of the tools and manipulated variables according to their personal levels of knowledge, experience, and understanding. More important, is that they used tools and manipulated variables in an experimental manner, without having or knowing that there were a predetermined set of outcomes. Each student worked in a uniquely individual world. The rules were not known in advance. They were there to be discovered, based on personal practical knowledge and to be experimented with in real time.

In a traditional classroom experimental setting, students generally repeat and reproduce one the 'classic' set of experiments particular to the subject being studied. They know the outcomes in advance and they are graded according to how well they present the experiment in written form and how close they come to the predetermined results. This type of learning/teaching situation lends itself to empirical assessment methods with which today's teachers are comfortable with.

We know that this type of setting only occurs in the classroom and lessons learned there do not really apply to the real world. Simulations attempt to model the real world, therefore addressing problems found there. Simulations approach reality with a greater degree of clarity and practically then 'content' found in the current curriculum and classroom. Therefore, they have the potential to introduce a greater degree of realism, individuality, and personal responsibility to the learning process.

Our methods represented to the students a new way of addressing learning. Learning is a personal and individual process, done by each of us in a uniquely different way. These students came to us as directed learners. They expected us to direct their learning experience in this new situation because that this the way their own personal schooling experience had been. We struggled with this during their introduction to the first simulation. Initially, they required a lot of direction and reinforcement in tackling the challenges presented by the software. Over the course of our first four meetings,this changed for them. They developed independent problem solving skills, and gained the confidence and the independence to address new problems on their own. They stopped seeing us as 'teacher directors', and started to regard us more as facilitators, and though difficult to document, they probably learned more 'content' in their time with us, than in their previous school experiences.

The following applications represent a guide for assessing the quality and features that should be found in simulation software that can be used across the curriculum. The grades are suggested as a guide.

Flight Simulator 4: (High School)
A real-time simulator, this program is the current version of one of the most popular computer simulations. In this version, the developers have added a design pallet that allows the player to create aircraft of their own design by modifying 30 different design parameters. While it is not possible to provide details here, this feature makes it possible for teachers to use the program to have students study the effects of design variations in terms of Newtonian laws of motion. Principles of momentum, acceleration, lift and force are just a few of the possibilities for dynamic lessons in physics derived from creative manipulation of the program design parameters.

Moonbase: (Junior High School)
Students would use this program to design a moonbase for the exploration and mining of the moon. Variables under the student's control determine the health of the explorers, climate control and power output, mining of, and manufacturing with , oxygen, helium3, and water, and employee relations.

SimEarth: (High School)

The player constructs a planet, choosing from one of the four available geological time periods as a starting point. The curricular possibilities are evident in the broad categories of variables controlled by the player: chemical, geological, biological, and human factors. Among other topics, this program lends itself to creative exploration of concepts in evolution, atmospherics, continental drift, and astronomy.

SimCity: (Grade 5)

The player is the city mayor, city planner, and city manager, having the responsibility of building a city infrastructure that supports a healthy populace with an active, productive economy. Such variables as pollution control and energy systems provide ample room for science-oriented lessons. The whole task lends itself to a marvellous exploration of human factors in ecology.

Civilization: (Grade 6)

The goal of this program is to compete against other emerging civilizations, evolve on Earth so as to lead all others in the scientific and social science departments, and to lead your people to another galaxy. The player can pick the number of other groups to compete against and the planetary conditions from which to start. The goal is to create a growing and happy populous by maintaining a healthy economy, making war and peace when necessary, dispatching diplomats, caravans etc.

All of the above also afford the possibility of interesting mathematics assignments, since underlying the simulations are sets of equations that govern the machine's response to player's input. Other simulations to consider. "Where In the World is Carmen San Diego?", "Shuttle". "Populous", "Railroad Tycoon", "A-Train", and "Glider".

In conclusion, I believe that this calibre of simulation can serve as an effective integrating tool, and can, if effectively implemented, serve as the focal teaching tool for many subjects currently taught in our schools. The emerging state of the technology will only enhance our abilities to create interactive computer based learning environments, freeing both the teacher and student from the restraints placed on them by curriculum and the schooling process.

For more information please contact me at 220-6617 or bilan@acs3.acs.ucalgary.ca.

Bohdan J. Bilan, is doctoral student at the University of Calgary, in computer applications. He is researching computer assisted second language learning. He has been a teacher for 12 years, having taught kindergarten through grade twelve.

The Portrayal of Gifted Children in Children's Books

Barbara Brydges
The University of Calgary

The objective of this study was to ascertain: whether gifted children are often found in children's books; whether there are consistencies in the way that they are portrayed; and finally, whether these portrayals are realistic. The underlying assumption is that literature reflects society's views and values so that fictional portrayals are a reflection of contemporary attitudes.

There are also practical uses to be made of such literature. Stories provide a coherent view of experience, providing a quite different picture of giftedness than can be gleaned from academic texts or lists of "gifted characteristics". Gifted children reading books about other gifted kids will experience a fellow-feeling, and spark of recognition. They may be helped to understand themselves, or may feel less isolated or unusual. Books can be used for bibliotherapy; a form of counseling in which individuals are encouraged to read and discuss novels in which the characters are confronted with situations and problems similar to their own.

I identified and read twenty-seven contemporary children's or young adult novels in which either the protagonist or one of the major characters was described in terms which are normally recognized as gifted; i.e. possessing high intelligence, highly able in school, or talented in a particular area such as art, music, science etc. This is in no way a comprehensive or exhaustive list of all possible titles, but it is sufficient to allow of breaking them down into six categories, based on the degree of their focus on giftedness.

CATEGORY ONE - There are a number of books in which giftedness is clearly described as an innate characteristic of the protagonist, but this fact is in no way a dominating feature of the character or of the book's plot or theme. Books on the bibliography that fit into this category include those by Danziger, Poole, and Rodgers. In all of these the fact that the central character is gifted is neither "here-nor-there", nor would it be easy to determine any commonalities to these three characters that could be used to develop a portrait of gifted children.

CATEGORY TWO - Books that fall into this category have characters who are clearly who and what they are because they are gifted, but giftedness is not an issue or concern. In some ways, these may be the most positive portrayals of all, because these are well-integrated, self-confident individuals, content to be themselves and comfortable in developing their abilities. This group includes the two books by Bruce Brooks and MacLachlan's The facts and fictions of Minna Pratt.

CATEGORY THREE - The third category are books in which the protagonist, or another important character, is gifted and that giftedness is a source of some problem or conflict, but giftedness is not the central focus of the book's plot or theme. Titles from the bibliography which fall into this category include the books by L'Engle, Mahy, Sweeney and Tolan. L'Engle's and Tolan's books are both narrated by older sisters, who describe the problems of their exceptionally gifted younger brothers in similar terms. Both boys have a deep interest in science, and no common interests with the other children in their grade one classes.

L'Engle describes Charles Wallace Murry's first day in grade one, when the teacher asks the students to each tell her something about themselves:

> Charles Wallace ('You should have known better!' Meg scolded him that night) stood and said, "What I'm interested in right now are the farandolae and the mitochondria"......
>
> "Now, Charles, suppose you stop making silly things up, and the next time I call on you, don't try to show off." (p. 15,16)

The result of his being so different is that he is beaten up daily by the other kids.

Doug, the little brother of Tolan's narrator has few friends of his own age. "None of the other kids could relate to his all-consuming interest in the Ordovician age, and the very idea of playing with matchbox cars or pretending to be the captain of a spaceship had always bored him silly". (Tolan, p. 16)

Nevertheless, these problems are secondary elements of these novels - L'Engle's novel dealing with themes of good and evil, and Tolan's with learning to accept differences and weaknesses in other people.

CATEGORY FOUR - Three of the books on the bibliography tell the story from the other side, from the perspective of those who see themselves as "put down" or abandoned because they are not labelled as gifted. These are the books by Cresswell, Pfeffer and Woodson.

Cresswell's Ordinary Jack, is a humorous English novel about young Jack, the only one of the Bagthorpe clan who doesn't have several extraordinary talents. With the help of a sympathetic Uncle, he sets out to convince his family he has psychic powers.

Ten-year-old Laurie, in Pfeffer's Dear Dad, Love Laurie, writes to her absent father about her anger over not being placed in the school's gifted program, while her friend is. Laurie schemes and connives to get herself admitted to the program, and in the end achieves her goal.

These books do not negatively portray gifted individuals, the problem clearly residing with those who are jealous, but the tendency of the reader is to be "on the side" of the protagonist.

CATEGORY FIVE - Two books on the bibliography, and several other series that are not included, are works in which giftedness is exaggerated for the sake of humour. Fitzgerald's Great Brain series is similar to other series, such as the Encyclopedia Brown or the old Tom Swift books, in which the intelligence of the young hero is such that he can solve any problem, although sometimes he's "too smart for his own good". Although stereotypical in nature, these are very positive portraits.

Roald Dahl's presentation of an impossibly gifted young child, in Matilda, has a more serious satirical intent. Matilda who has read all of the Great Books by the time she starts Primary School, has the misfortune to be born to completely insensitive and stupid parents, "so wrapped up in their own silly little lives that they failed to notice anything unusual about their daughter".(p. 10) As if her parents weren't bad enough, the headmistress of the school is a bullying abusive tyrant who hates children. Matilda uses her brains and abilities, including the ability to move objects at a distance, to get revenge on her parents and give the headmistress her comeuppance. It's all satire and exaggeration, however Dahl makes some serious points about how children's abilities and interests can be run right over by adults.

CATEGORY SIX - The final, and largest, category of books are those that explicitly focus in plot and/or theme on an issue that arises, at least in part, because the protagonist is gifted.

The perception that giftedness creates a difference, and distance, from others of the same age is expressed in a number of books. Krumgold's Henry Three begins with Henry begging another boy not to tell the other kids about his (Henry's) high I.Q., because he has found from experience that he won't have any friends if they find out. However, Henry comes to realize that everyone in the community is hiding who they really are, including his own corporate-executive-father, and he determines to be true to his real self. He opens up and shows his real abilities in school.

A similar growth into the courage to be himself comes to ten-year-old Jessie Aaron's in Paterson's moving novel Bridge to Terabithia. His growth is fostered by a close friendship with Leslie Burke, a friendship that frees Jessie to admit his own deep passion for art, and gives him a self-confidence that he is able to retain even when he loses both Leslie and their own private kingdom of Terabithia.

Getting to know others with similar interests, on a real and intimate level, is also the key to overcoming the isolation that comes with giftedness in Snyder's very appealing novel Libby on Wednesday.

Hermes' I Hate Being Gifted and Cooney's Among Friends are written for different age groups but have a very similar storyline. In both books, a girl is rejected by her two best friends because her abilities separate her from them. Hermes' protagonist is sixth grade KT whose problems begin when she's put into the school's LEAP class (Learning Enrichment Activity Program) and her two friends join forces with snooty Erica to form an exclusive club. KT finds the courage both to refuse to join the club and to stay in LEAP, and her friends return.

Cooney's heroine Jennie is a perfectionist who finds herself excluded by all her classmates because, in her junior year of high school, she surpasses everyone else in absolutely everything she does. Finally the pressures of ostracism and her own drive for perfection cause her to run away from town. When she returns, Cooney seems to believe that she is showing that Jennie has learned to be herself, but the message that comes through much more clearly is that Jennie brought is on herself by not thinking more about other people. I found this the most manipulative and problematic book on the bibliography.

The two most emotionally powerful books are Peck's Remembering the Good Times and ONeal's The Language of Goldfish. Both are about gifted adolescents for whom adolescence, and the whole prospect of growing-up, are very difficult. The pressures they feel are not external but internal. They are perfectionists, not so much in having to achieve, as in wanting the world to be a more perfect place. Both Carrie, in The Language of Goldfish, and Trav, in Remembering the Good Times, possess a high degree of emotional intensity. These are very believable portrayals of gifted individuals, personifying Dabrowski's and Piechowski's psychological theories about the "overexcitabilities" characteristic of giftedness.

Carrie, artistically and mathematically gifted, feels like a puzzle piece that doesn't fit. The stress of becoming an adolescent causes her world to internally disintegrate into shards of colour. She is hospitalized and then begins daily therapy sessions, which help reconcile her to the changes in life. As she finally concludes: " I know why I got sick...for some people growing up is especially hard. For Moira it isn't. For me it is." (p. 176)

Trav Kirby, the bright sixteen year old in Remembering the Good Times, possesses great empathy and a strong sense of justice and morality. He worries intensely about world affairs and drives himself to keep his own internal schedule.

> After he'd gone one time, Kate said, "Trav's wound up too tight. He's in too big a hurry to grow up."
> Polly was collecting the cards to lay out a hand of solitaire. "He ain 't in a hurry to grow up", she said. "He dreads it." (p. 33)

Trav doesn't grow up - he commits suicide.

One way for a bright kid, who sees the faults of the world, to survive is shown in Bruce Stone's book Been Clever Forever. By two days into his grade one year, Stephen Douglas' parents have been told their son is a "divergent thinker," in the first of an endless series of parent-teacher conferences, recorded in a "...personal school record, which in eleven years has come to rival in sheer bulk the collected case studies of Herr Sigmund Freud." (p. 5-6)

Stephen refuses to take "the system" seriously and although he describes himself in terms that relate entirely to his intellectual ability, he also pokes fun at "giftedness". He never does what is expected of him. When the other students, and the principal, try to make him their hero and leader in getting rid of an unpopular teacher, he begins to side with the teacher. This is a book in the tradition of Catch 22 or Catcher in the Rye, with some hilarious moments, although it is uneven in execution and begins to wear a little thin.

It can be seen that there is a wide diversity of portrayals of gifted children in children's books, but there are also some frequently recurring themes. In spite of the recurrence of certain problems associated with giftedness, it would be a mistake to conclude that overall children's literature provides a negative portrayal of the gifted. Firstly, the books in which giftedness is not a problem are numerous but they do not lend themselves to lengthy analysis by the very fact that they spend little time dwelling on the gifted nature of the characters. Secondly, in the books in which giftedness is shown as causing problems, the problems are often succinctly described in "quotable" paragraphs; whereas the resolutions, in which the protagonists' strengths and abilities to find solutions are revealed, are less easily summarized and characterized.

The books in which giftedness is a major focus differ widely in quality. The least successful are those in which giftedness is a plot device, such in Hermes' and Cooney's books. The most successful are the books which focus on character, such as Peck's and ONeal's, where it is clear that the author is giving us an individual story, rather than a portrait of a group.

GIFTED CHILDREN IN CHILDREN'S BOOKS

Brooks, Bruce. *Midnight hour encores*. New York: Harper and Row, 1986.

---. *The moves make the man*. New York: Harper & Row, 1984.

Cooney, Caroline B. *Among friends*. New York: Bantam Books, 1987.

Cresswell, Helen. *Ordinary Jack*. London: Penguin, 1977.

Dahl, Roald. *Matilda*. New York: Penguin, 1988.

Danziger, Paula. *The cat ate my gymsuit*. New York: Dell Publishing, 1974.

Fitzgerald, John D. *The great brain*. New York: Dell Publishing, 1967.

Hermes, Patricia. *I hate being gifted*. New York: G.P. Putnam's Sons, 1990.

Krumgold, Joseph. *Henry 3*. New York: Atheneum, 1971.

L'Engle, Madeleine. *A wind in the door*. New York: Dell Publishing, 1973.

MacLachlan, Patricia. *The facts and fictions of Minna Pratt*. New York: Harper Trophy, 1988.

Mahy, Margaret. *The catalogue of the Universe*. New York: Atheneum, 1986.

Newton, Suzanne. *Where are you when I need you?* New York: Viking, 1991.

Oneal, Zibby. *The language of goldfish*. New York: Penguin, 1980.

Paterson, Katherine. *Bridge to Terabithia*. New York: Harper Trophy.

Peck, Richard. *Remembering the good times*. New York: Dell Publishing, 1985.

Peyton, K. M. *The Beethoven medal*. London: Oxford University Press, 1971.

Pfeffer, Susan Beth. *Dear dad, love Laurie*. New York: Scholastic, 1989.

Poole, Jesephine. *This is me speaking*. London: Red Fox, 1990.

Rodgers, Mary. *Freaky Friday*. New York: Harper Trophy, 1972.

Snyder, Zilpha Keatley. *Libby on Wednesday*. New York: Dell Publishing, 1990.

Stone, Bruce. *Been clever forever*. New York: Harper Keypoint, 1988.

Sweeney, Joyce. *Face the dragon*. New York: Delacorte Press, 1990.

Taylor, Cora. *Julie*. Saskatoon, Canada: Western Producer Prairie Books, 1985.

Tolan, Stephanie. *No safe harbors*. New York: Charles Scribner's Sons, 1981.

Wolff, Virginia Euwer. *The Mozart season*. New York: Henry Holt and Company, 1991.

Woodson, Jacqueline. *Last summer with Maizon*. New York: Delacorte, 1990.

The Artifact Box Exchange Network

Phyllis Chmiliar
Sherwood Park Catholic Separate School District

The Artifact Box Exchange Network was developed by Heather Holmberg. The co-directors are Scott Johnson and Brian Reid. Their brochure defines this project as "a biannual, interschool project that involves students in the development of advanced research, reference, and reasoning skills through the use of a hands-on simulation activity." A variety of curriculum topics are integrated. Students from grades one to twelve may participate and it is suitable for small group or large group situations.

To participate in the Artifact Box Exchange Network it is necessary to complete the prescribed registration by September 30th for the fall exchange, and by January 30th for the spring exchange. See attached copy of the registration form. The program is approximately fifty dollars which covers administration costs and the teacher's guide.

Suggestions to introduce the project are outlined in the teacher's guide. One example is the ziplockian culture. The teacher places various items into ziplock bags. Students work in groups to analyze the items and draw some conclusions about the particular culture. Students explain and share their findings. Another activity is the mystery handbag. The teacher places various different items into different kinds of handbags. The students examine the handbags in groups to draw conclusions about the owner of the handbag. The handbags are circulated. A discussion is conducted to share the students' ideas and compare their analyses of the owners of the handbags.

A simulation activity which is also outlined in the teacher's guide includes prepared clues for a mystery location. The clues are given to students a few at a time and students research to find the location. This activity demonstrates to the students the process involved in researching to solve the mystery location.

The teacher brainstorms with the students the types of clues which they could prepare to send to their mystery partner. The teacher's guide outlines twenty-five types of clues to include in each artifact box. The class prepares the clues individually or in groups. Clues may be assigned, or randomly selected. Students bring artifacts representative of their clues and include these with their clues. Examples of some of the clues include manufactured food product, map of location, postmark, weather maps, recreational activities, population, and historical landmark. Clue cards which give information about the clue are prepared.

Teachers should ensure that students have cut away or blotted out any information that would give away the answers to the items that they are sending. The completed clues are categorized into the levels of difficulty: ie. easy, medium, or hard and are packed to send to the exchanging school. It takes approximately six to ten hours of class time to prepare the clues.

Pictures of the participating students, a video tape, a sound tape, or penpal letters are methods of corresponding on a penpal basis with the exchanging class. The completed artifact box is mailed by the deadline which is November 30th for the fall exchange, and March 25th for the spring exchange. Students receive their mystery artifact box within one to two weeks.

Students research the clues of their mystery artifact box to solve the exchanging school's location. Some of the different sources which are utilized in the research include encyclopedias, library reference books, maps, almanacs, posters, and pictures.

The students have until January 29 in the fall exchange and May 10 in the spring exchange to solve the mystery artifact box. At this time an evaluation is completed and returned with the artifact box to the exchanging teacher.

When the artifact exchange program was conducted at St. Theresa School in Sherwood Park, Alberta, the students were very enthusiastic when working on the project and very much enjoyed the exchange. The project developed creative and critical thinking skills, motivated students to utilize a variety of research references, encouraged students to compare their culture with others, and improved their attitude toward social studies, research skills, and science instruction. The students had great fun while learning.

REGISTRATION FORM

THE ARTIFACT BOX EXCHANGE NETWORK

P.O. Box 9402
Bolton, CT 06043
For Registration and Partner Information, call (203) 643-0090
For Billing and Technical Assistance (203) 643-1514

Registration Guidelines:

1. Only one (1) registration per form.
2. Only the teacher involved should complete this form.
3. Payment or purchase order must accompany this form.
4. Please make checks payable to "Artifact Box Network". Submit U.S. funds only.
5. Sorry, no telephone registrations accepted.
6. Orders must be received by the semester deadlines.
7. All information must be completed

Registration Deadlines: Fall - September 30 / Spring - January 30

Please type or print all information neatly.

I WISH TO RECEIVE: _____ONE COPY OF THE TEACHER'S GUIDE ($15.00)
_____ONE CLASSROOM EXCHANGE ($30.00)

I WISH TO PARTICIPATE IN THE: (Check one & indicate year)
____FALL SEMESTER, 19____ *OR* ____SPRING SEMESTER, 19___

METHOD OF PAYMENT: _____ CHECK (# ____________________________)
_____ PURCHASE ORDER (# ____________________)

Teacher's Name ____

School Name ____

Street Address ____

City ______________________________ **State/Province** __________

Zip Code / Postal Code ____________________

School Telephone (   ) ____________________________

Home Telephone (   ) ____________________________
(Your home number will not be distributed. You will be called at home only if a problem arises.)

Grade Level(s) of the class preparing box ________________

Number of past participations by this teacher________

Previous Exchange States (if any) Assigned to this Class ________________

9/91

Differentiating for Gifted and Talented: School Library Programs in Transition

C. Nancy Love Crawford / Judy Maynard
Bon Accord Community School

First of all Judy and I would like to thank the organizers for providing us with the opportunity to work in such distinguished company as Dr. Donald Treffinger and the other presenters at the conference.

Our presentation was based on the IDEA (Integration and Differentiation for Educational Actualization) program for students with gifts and talents at Bon Accord Community School. The program is based on and conforms with the blended programming suggested by Treffinger's work.

One of the essential elements of the program is the monthly special education meetings. Once a month a guest teacher is hired for the day to cover classes as each classroom teacher meets with the special education team. The team is made up of administration, counselling and special education teachers. Sometime consultants from Central Office are asked to attend as well. Teachers meet with the team one at a time to discuss educational programming for all of their students. The purpose behind the meeting is to provide the support that teachers need to differentiate curriculum for students. It demonstrates to teachers that they are not alone . . . that they are part of an instructional team all of whom are concerned and involved in educational decisions for students. This team of professionals work together to provide time, resources and additional personnel to assist the homeroom teacher with the strategies necessary to meed individualized need and to ensure personalized education for all students. Team members work together to improve the overall school program.

Much of the personalization of curriculum is achieved through the school library program. Each class by grade level is given time to plan research units to be jointly planned and taught by the teacher and the teacher-librarian. These projects were planned to teach thinking and research skills through the grade level curriculum. The vocabulary associated with the skills remains consistent throughout the grades and the skills themselves are cumulative as each grade level moves toward greater independent choices on a continuum. The skills and the approach are supported by two Alberta Education documents "Teaching Thinking" and

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"Focus on Research".

Another Alberta Education document entitled "Program Continuity" also influences the program. This document emphasizes the need for continuity between classrooms and grade levels, between home and school and community. It also looks at the importance of experiential learning and a consideration of learning styles. The IDEA program takes all of these elements into account as it plans projects that engage the students in meaningful activities carefully considering the needs of all kinds of learners. Best of all much of the learning is designed by the learners allowing them to bring to the project those things they already know and allowing them to reflect on the processes they are using on a daily basis.

The philosophy and the culture of the school allow for an integrated program. The school has a community school designation which means they have three extra people, the community school coordinator, the curriculum coordinator and the community school secretary to assist with the program. Many special events happen through the community school office.

Another facet of the program is its attempt to facilitate professional development through an offer of time. Teachers were offered time to read. They were invited to book a half day quest teacher so that they could spend some time with a fortified professional collection on gifted education. One of the 18 teachers on staff has taken advantage of the opportunity since the program began two years ago. Although time was identified by teachers as something they would need to complete all of the professional reading that came their way, they were unwilling to give up class time to do this. I'm not sure how else time could have been provided so that they would have taken advantage of it. Money was spent on resources for gifted education and much of this did fall into regular use. Time was also given for cooperative planning as a team and this time was accepted and proved to be very fruitful. Many of the exciting things that happened saw their beginnings in these team meetings.

Nineteen projects were planned and taught to meet curriculum content and research skills requirements. A conscious effort was made to include all subjects in the project themes. A grade two project on 'Shelter' was used as an example of what the project might look like. Even this project changed in the next year as it was repeated because of the reflective research of the teachers and the rest of the planning committee. Treffinger's require meant of tolerance for 'squiggiliness' was experienced as the program evolved to meet the needs of teachers and students.

The Shelter project at grade 2 began with a review of research skills at each phase. The students had experienced three previous projects in grade1 and 2. Strategies for **Pre-research** were reviewed and applied in the classroom with the teacher-librarian and the teacher. Students were asked to brainstorm prior knowledge, to brainstorm questions, to extend the questions, to categorize the questions and to develop headings in groups. At the **Retrieval** stage students gathered information in the library through print at the reading zone, through pictures and film without sound at the viewing zone, through taped information at the listening zone and through questionning at the interviewing zone. Notes were taken on retrieval sheets and each skill was rehearsed in the classroom on a similar topic prior to visiting the learning zones in the library. At the **Organizing and Creating** stage students sorted and organized and ordered and edited to create their final book project. They also worked on art projects with parent volunteers in small groups will teachers assisted with the editing of the book. **Sharing** revolved around a celebration of learning. Students invited parents, grandparents, school personelle, older siblings or some signifigant person to share their learning with them in the library. Each student had a private audience with which to share their final projects and their reflection journals. The research journals recorded dily feelings toward the project processes. Students were encouraged to express what they liked or didn't like about what they were doing, the process not the product. These journals stay in the library and follow the students from grade to grade.

Each of the 19 projects followed this basic format with variations in strategies taught at each stage of the research cycle. Each child had opportunities to contribute according to their ability or interest. The project creates an openendedness that encourages critical and creative thinking and fosters both inter- and in-dependence in learning. The student designs the learning. The teacher and teacher-librarian provide the setting where learning is encouraged.

If you would like further information please call Bon Accord

Community School at (403) 921-3559 or C. Nancy Love Crawford at (403) 939-2074. We are happy to share our IDEA with you. It is easier to make the wheel fit your situation then to reinvent it completely.

The Fine Arts in Global Education - A Greek Study

Lori Dusterhoft / Jennifer Fougere / Judith Hart
Gerry Johnston / Carla Leinweber / Irene Naested
Calgary Board of Education

The arts have always been a part of human life. Music, Dance, Drama, and the visual arts transmit the heritage of a people, their spirit, their culture, and their thoughts and feelings.

The project resources presented at this conference was jointly funded by the A.T.A. Fine Arts Council and Global Education. The following Fine And Performing Arts Educators from the Calgary Board of Education prepared a unit of study:

Fine Arts and Global Education: Greek Study
Lori Dusterhoft - Dance; Jenniefer Fougere - Music
Judith Hart - Drama; Gerry Johnston - Music
Carla Leinweber - Art; Irene Naested - Art

These educators believe that students achieve a significant cross cultural and global understanding by experiencing and creating the arts of a culture at a sensuous, expressive and formal level. This group of educators choose the topic of the study of Greece to enhance aspects of the existing social studies curriculum for grade six, Topic 6B Greece: Ancient Civilization. Developing these resources took approximately a year of meetings, observations at Greek festivals, research and lesson writing. The resources were then piloted with the elementary students and teachers at Queen Elizabeth Junior Senior High School and University Elementary. Students at both schools investigated many facets of Greece from ancient times to the present. Their studies led them into areas of mathematics, politics, astronomy, mythology, science, architecture, as well as dance, drama, art and music. The students' two month study culminated in a celebration of a Greek festival that included art and social studies displays, and music, drama and dance presentations staged in Greek costumes. The students from the two schools experienced, researched, and created the arts of Greece and achieved a greater understanding of a cultural group. Furthermore, they had the opportunity to express what they knew and understood about the culture in many ways through the fine arts communication means of visual images, symbols and costume; dance, gesture and movement; drama and story writing and telling; sound and music. The study of cultures is greatly enhanced by integrating the fine and performing arts disciplines into the investigation. Participants at this conference joined this group of fine and performing arts educators as they shared some cultural fine arts experiences with the participants through slides, videos, discussion, demonstration, and hand-on involvement in learning greek songs and dances. An extensive teacher's manual as well as the teaching video tape was available for purchase. Educators may purchase these items by contacting A.T.A. Global Education, Barnett House, Edmonton.

Does Canada Care for the Gifted Student?

Léonard Goguen
Université de Moncton

As an introductory remark, please allow me to express my appreciation to the executive committee of this gathering for having put together this joint conference and symposium. A conference allows speakers to present various perspectives on an issue, whereas a symposium is the meeting of a group to share experiences and advance the study of a phenomenon. You have joined together the strengths of your Third Annual SAGE Conference here in Alberta with the 6th Canadian Symposium on Gifted Education. I think it is fortunate for all of us here tonight that you have put together what Dr. Joseph Renzulli would probably call a Confratute (which is his combination of conference and institute).

Upon each of my visits to the western provinces of Canada, I am always touched by the beauty of the land and the kindness of the people. Your theme "Images in transition" may suggest that certain things do change... other things must remain, namely your beauty and kindness.

Before asking if Canada does care for the gifted learners, it is important to clarify what caring means, why caring for the gifted is so important, and how can we show caring behavior?

WHAT DOES CARING MEAN?

Caring has been defined as providing serious attention to something or someone or to be worried about or to like or to be fond of. In a book by Milton Mayeroff in 1971, entitled "On Caring", the author specifies that caring is the antithesis of simply using other persons to satisfy one's own needs. To care for another person, in the most significant sense, is to help another person grow and self-actualize.

Caring, as helping another person grow and actualize himself, is a process, a way of relating to someone that involves development, in the same way that friendship can only emerge in time through mutual trust and a deepening of the relationship.

When we care for a child, a student or a companion, we experience and often express positive feelings while being with that person or while witnessing the accomplishments of that person. The positive feelings are nearly always perceived by the child, student and companion and felt as a generating force of positive energy.

If caring is helping a person grow and self-actualize, why is it so important for the gifted student to be cared for?

WHY IS CARING IMPORTANT TO THE GIFTED LEARNER?

You are going to say that it is very important for the gifted and talented to experience caring because it allows them to grow and to self-actualize... and that is true... but there is another highly important reason why we need to care for the gifted, and that is because it is through a caring relationship that we become able to care for others. If the gifted are our most precious resources to ensure the development of our world, our nation, our environment, our future; it may be important that we make sure that our gifted and talented learners are persons who care...

In our current society of violence, political debates, competitions and devastating environments, we need leaders who care.

It is therefore quite important to care for the gifted, to allow them to acquire a sense of caring through meaningful relationship in which caring is mutual, each cares for the other. Caring then becomes contagious. It is through modelling and imitation that human qualities such as caring are developed.

When we witness an event experienced by another person and this model appears very satisfied with the experience, the observer's perceptions are reinforced and he or she will tend to repeat the experience. Thus to develop caring in the gifted, they need to be surrounded by caring persons as models. To help us become better caring teachers, parents or administrators of gifted learners, let us examine the qualities of the caring person.

In the same way that someone wanting to become an excellent horseback rider would watch an excellent rider going through the motions, someone wanting to care would learn from a caring person. Knowing that most of you by profession are caring persons, you must have been in contact with teachers, parents and/or friends who cared for you. I would suggest that you take a few minutes and reflect upon the qualities of a caring person you do know or you have known and list the qualities, things she or he did or said that made that person a caring individual for you.

Among these qualities, teachers usually identify characteristics like being helpful, interactive, disciplined, encouraging and positive in recognizing your strengths. These are the characteristics found in a caring culture.

Brendtro, Brokenleg, and Van Bockern (1991) recently prepared a book that illustrates the importance of belonging to a group that cares prior to developing generous behavior. In their book, On Reclaiming Youth at Risk, they reported on their study of the wisdom of native Americans in their way of caring for their children and youth.

Based on observations and practical clinical experiences, they studied the traditions and wisdom of the American natives in their methods of natural education, which have positive effects on adjustment.

Brendtro and his colleagues (Brendtro, Brokenleg and Van Bockern, 1991; Brendtro and Brokenleg, 1993) identified four major areas of development which grow from the experience of belonging, mastering, becoming independent and feeling generosity. The authors' perception is that a person must experience belonging by having a positive link to a group, a family or a tribe where feeling at home and being affirmative about belonging to the group is expressed. With the sense of belonging, the acquisition of mastery comes from identifying models for skills to be acquired in play as well as work. The competent (master) person is able to take control of his or her own needs and become independent. Generosity, which includes sharing and caring, is the fourth step represented in a colourful native graphic called the circle of courage.

From this study on native Americans, we could say that to become a caring person, one must experience belonging rather than rejection, mastery rather than failure, autonomy rather than dependence and then generosity.

This confirms the importance of caring and from your participation I believe that we care for the gifted. It means that some Canadians care... but does Canada care?

DOES CANADA CARE?

In Canada, three provinces have provisions in their education legislation for services to gifted learners; they are Saskatchewan, Ontario and Alberta. Furthermore, all of the provinces and territories except Prince Edward Island and the Yukon have explicit statements in their departmental policies and guidelines on the education of the gifted. Since these policies express a will for a collective action on behalf of gifted and talented learners, it could be concluded that Canada does care for the gifted. However, focusing on some of the challenges in gifted education in Canada will help us answer the question of whether our country cares for the gifted student. Let us identify some of the issues or challenges that could affect the caring for gifted learners.

Regular education initiative in the post-integration decade.

A first issue or challenge that we could examine is the concept of mainstreaming or integration recently called the regular special education.

This major thrust, regular education initiative, has become the pride of different provinces in Canada over the last decade. In the book Special Education across Canada (Csapo, & Goguen, Eds.,1989), various authors (Mc Bride, 1989, Wilson, 1989, and Perner and Robert, 1989) describe the regular education initiative as the major accomplishment of the decade. Mc Bride

(1989, p. 12) describes the interfacing between regular and special education in British Columbia as a crucial issue which creates new relationships and new demands for curricular adaptation. Wilson (1989, p. 91) concludes her chapter by saying that in Ontario, erasing the distinction between regular and special education will permit educators to meet the learning needs of all pupils. In New Brunswick, the legislative change of 1986 relative to integration is presented by Perner and Roberts (1989, p. 103) as the stepping stone towards an integrated education system which makes all education "special".

A further analysis of practices in the regular education initiative on integration could show a decline in caring for gifted learners. In New Brunswick, the focus at the end of the last decade has been on integrating exceptional children (mostly the mentally handicapped who were in separate classes) within the mainstream of regular education. The tensions caused by the mainstreaming conditions and process and the focus on the needs of a subpopulation of exceptional children have left a narrow vision of the education of exceptional children. The promotion of integration and the heterogeneous grouping of all learners has led to the elimination of special groups for more advanced learners. Could the promotion of enrichment activities for all or cooperative learning for all be the answer for gifted learners? These priviledged new options without teacher training and teaching materials could be a panacea that would not necessarily assure caring for all the gifted and talented.

Focus on math and science

In the recent focus on excellence, Canada, like other countries, wants to maintain a level of competitiveness on the international scene by streamlining academic development in math and science. Although this focus might bring services to the gifted learners, it could restrict enriched education to the areas of math and science only.

A non-categorical perspective

In the provinces of British Columbia and Saskatchewan in particular, a non-categorical perspective on serving learners with special needs is being advocated. While the provision of appropriate education to the gifted may be assured in such a framework, some jurisdictions could develop a fear of identification and thus not provide the caring to the gifted learners. The fear of identification could be a barrier to service delivery but a non-categorical perspective could allow proper education for all children.

THE GIFTED NEED CARING ADVOCATES

Are the emerging practices called the regular education initiative, the focus on math and science or the non-categorical perspective blessings or burdens to the gifted learners? Are these signs of increasing or decreasing care for gifted learners? Do we have indications that Canada does care for the gifted?

Changes in laws, regulations and departmental policies and guidelines in Canada over the last decade show that Canada does care for the gifted. Changes on behalf of the gifted have been happening through the advocacy of people who work for the gifted and talented in Canada, namely the Association for Gifted of the Canadian Council for Exceptional Children, the Association for Bright Children, and education for the gifted divisions of teachers' unions. Through its caring advocates, Canada cares for the gifted. Challenged by emerging initiatives, the educational systems needs you as advocates to ensure that caring to gifted will be cherished.

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Giftedness in the Regular Classroom

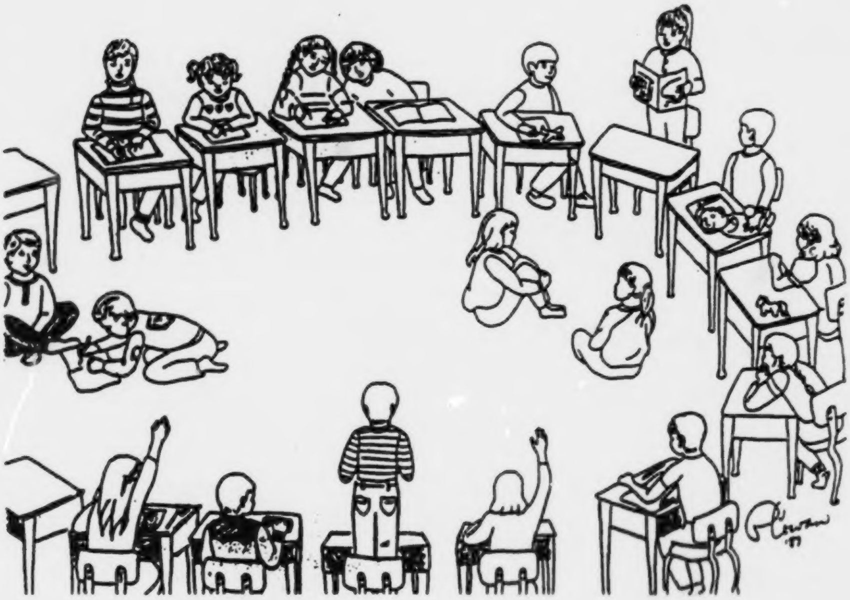
Anne Green
Mossleigh Demonstration School

Can we meet the needs of our gifted children in the regular classroom?

I believe we can.

We need to create an environment together where we catch one another doing good. One where students are engaged in shaping their days.

The Community of Learners



An environment conducive for a community of learners to actively explore ideas and experiences together, as they construct meaning and communicate understandings in cooperation.

An environment that is formed and molded by the learners—One where everyone can make a difference as he/she takes responsibility for ongoing learning.

An environment where "making mistakes" spurs on further use of the language and motivates the search to make meaning.

An environment where kids are talking, writing, listening, and interacting as they support and build upon one another's ideas.

An environment that encourages experimenting with communicating, as individuals learn about and use their strengths and talents.

An environment where kids are making decisions about their learning by explaining, questioning, and hitch-hiking from one another. (They know what it is that they still do not understand.)

An environment that encourages a balance between creative and logical thinking within a meaningful context.

An environment where kids are developing an awareness and a respect for "the voice" of each other as they naturally build self-confidence.

An environment that complements the learning strengths and talents of children so they might be ever reaching their potential in school and through life.

An environment where the community of learners extends beyond the walls of the school, as we put into practice the philosophy, "EVERYONE A TEACHER, EVERYONE A LEARNER."

Implications for Teachers

Teachers joining the community of learners become aware that their changing role is that of a facilitator. As teachers truly facilitate, learning becomes something that students do for themselves not for someone else, e.g., the teacher. Differentiation begins to happen as students enjoy learning according to their strength and passion areas. Students learn how to learn as they become involved in learning as a process rather than in lessons with closure.

The teacher begins to listen with new ears, to observe with new eyes, to provide scaffolding where needed, (strategies) to find a mentor to join a child with a passion area, to ask a question to encourage higher level thinking by being cognizant of the following:

beginning questions with ... (why? how?)

avoiding being judgmental ... ("Oh, isn't that good.")

avoiding being directive or leading ... ("Why don't you try it this way and see what happens?)

instead be reassuring ... ("I'm sure you will find ways to solve your problem.)

instead be reflective ... (I can see you have given a lot of thought to your conclusion.)

Teachers enjoy new learning journeys as they become aware of the seven intelligences as adapted by Thomas Armstrong from Howard Gardener's work in *Frames of Mind*. Armstrong writes for parents and teachers with a list of the possible criteria for each of the intelligences as well as suggestions for ways to accommodate students.

(Book *In Their Own Way* by Thomas Armstrong)

The following are examples of Dr. Armstrong's works.

Linguistic Intelligence

- like to write,
- spin tall tales or tell jokes and stories,
- have a good memory for names, places, dates, or trivia,
- enjoy reading books in their spare time,
- spell words accurately and easily,
- appreciate nonsense rhymes and tongue twisters,
- like doing crossword puzzles or playing games such as scrabble or anagrams,

Logical — Mathematical Intelligence

- compute arithmetic problems quickly in their head,
- enjoy using computers,
- ask questions like "Where does the universe end?" "What happens after we die?" and "When did time begin?"
- play chess, checkers, or other strategy games, and win,
- reason things out logically and clearly,
- devise experiments to test out things they don't understand,
- spend lots of time working on logic puzzles such as Rubik's cube.

Special Intelligence

- spend free time engaged in art activities,
- report clear visual images when thinking about something,
- easily read maps, charts and diagrams,
- like it when you show movies, slides or photographs,
- enjoy doing jigsaw puzzles or mazes,
- daydreams a lot,

Intrapersonal Intelligence

- display a sense of independence or a strong will,
- react with strong opinions when controversial topics are being discussed,
- seem to live in their own private, inner world,
- like to be alone to pursue some personal interest, hobby, or project,
- seem to have a deep sense of self-confidence,
- march to the beat of a different drummer in their style of dress their behavior, or their general attitude,
- motivate themselves to do well on independent study projects,

Musical Intelligence

- play a musical instrument,
- remember melodies of songs,
- tell you when a musical note is off-key,
- say they need to have music on in order to study,
- collect records or tapes,
- sing songs to themselves,
- keep time rhythmically to music,

Bodily-Kinesthetic Intelligence

- do well in competitive sports,
- move, twitch, tap, or fidget while sitting in a chair,
- engage in physical activities such as swimming, biking, hiking, or skate-boarding,
- need to touch people when they talk to them,
- enjoy scary amusement rides,
- demonstrate skill in a craft like woodworking, sewing, or carving,
- cleverly mimic other people's gestures, mannerisms, or behaviors,

Interpersonal Intelligence

- have a lot of friends.
- socialize a great deal at school or around the neighborhood,
- seem to be "street smart,"
- get involved in after-school group activities,
- serve as the "family mediator" when disputes arise,
- enjoy playing group games with other children,
- have a lot of empathy for the feelings of others,

The following is a scenario with some transcription of the students' actual talk, from my first grade classroom, to present the community of learners in action, where the children are meeting their many intelligences (talents).

Ben (logical and linguistic talent areas) came to school in September, in love with Bald Eagles. He shared wonderful illustrations and stories both fiction and non-fiction with the community of learners. He informed us that 'bald' is the old English word for white.

However, he often found it difficult to join the class activities, which was the case one September day during the theme all about colors. The class was involved in miming the song *Stolen Rainbows,* where an old moose gathers up the colors of the rainbow and stuffs them into a sack leaving the world dull and gray. One student would be the moose while the rest of the class would be the colors of the rainbow.

Teacher, (as facilitator, thinking about how to naturally involve Ben) "Everyone is having such fun, however we need a problem for the moose to encounter. The colors of the rainbow are at the mercy of the old moose. He can't be allowed to win so easily."

Chelsea, (music, her talent) "Well, the colors win when they find a crack in the old sack and wiggle to freedom" as she began to sing the part from the song to support her argument.

Jeff, (interpersonal and logical talent area, relaxed as he mimed the part of the old moose) "Oh, but the old moose gets them back every time."

Ben (his face lighting up as he saw an opportunity to build on to an idea, and incorporate his passion area) "I'll be a bald eagle and dive bomb the moose and help the colors."

The whole mime took a new direction with new problems to solve. Ben proudly experienced using his passion as he made his learning meaningful and personal. He felt a valuable part of the community of learners as he built on to the learning of others as well unto his own. Ben came the next day dressed as a bald eagle and we enjoyed the mime for many days. He also worked on an individual project about bald eagles for months which he shared in the school Science Fair in February. The curriculum, for Ben, was relevant and internalized to meet his needs.

The above real-life action transcribed from the community of learners in my classroom is one of many which I shared at the SAGE Conference to bring alive the way gifted students can meet their needs in a community of learners in the regular classroom.

Conclusion

Learning is a process for our gifted children, one where they, above all, are learning about themselves as learners.

Parents are an integral part of this learning and are needed in the classrooms as facilitators and questioners. Parents join the community of learners as they too write; to learn about the changes in education, to share stories and to model a love for learning.

THE COMMUNITY OF LEARNERS could be the answer for meeting the needs of the gifted in the classroom.

VOGOTSKY, a leading educator writes *What a child can do in cooperation today, he can do alone tomorrow.*

Kids' Network: Researching the World

Beatrice Gursky
Sherwood Park Catholic Separate School District

National Geographic Kids' Network brings students into the classrooms of the future with the interdisciplinary unit entitled TOO MUCH TRASH? NGS Kids' Network is a telecommunications-based, integrated curriculum for science, social studies, geography, language learning and mathematics. The NGS Kids' Network links students in Canada, United States and other countries, such as Japan, through the use of computer technology (windows) and a telecommunications system (modem). Recommended for students in grades 4-6, this unit challenges able and gifted students to use higher levels of learning and cognitive processes.

Through the network's electronic mailbox in the central "post office" computer, students from the Learning Enrichment Activities Program (L.E.A.P.) at Father Kenneth Kearns School in Sherwood Park collaborated with a team in thirteen different global locations to study the environmental impact of trash. In total, 261 teams from around the world participated. All teams were responsible for reporting their geographic location (in latitude and longitude coordinates) to the central network hub. NGS software included a sophisticated mapping menu designed to plot the global coordinates of research teammates. Soon our global team of students, mostly from the United States, but also from Japan, plotted and printed the global address of thirteen teammates on the computer and wall maps.

During the first week, investigation into community disposal methods were conducted. Our investigation included interviews and conversations with school, community and provincial trash disposal employees. Similarities and differences were reported to teammates and contrasted by locality. Information for an in-depth discussion of the trash disposal methods for three localities: New York, New York; Tokyo, Japan; and Wellesley, Massachusetts; was included in the activity sheets of the Kids Handbook. Lastly, students wrote their own definition of "trash" using the network word processor and predicted the amount of trash they thought might be generated by the class in one day. Soon the students began to use the word processor to write letters to specific teams. A professional unit scientist assigned to the team by NGS was Allen Hershkowitz, a senior scientist at the National Defense Council in New York.. Dr. Hershkowitz emphasized the importance of collecting data carefully and consistently, according to scientific principles.

In the following weeks, the students conducted their own research by designing and implementing an in-class trash collection. Categories of trash weighed and measured included paper, metal, glass, plastic, food, and miscellaneous. Trash data (calculated in grams per student per day) was electronically recorded and reported to team members around the world. The young scientists predicted, selected, calculated, compared, interpreted, analyzed and graphed grams of trash. Graphing software allowed the construction of horizontal, vertical, line and pie graphs for trash data.

Week Four included study of the consequences of trash and the current disposal methods. The students considered how the three R's - reduction, reuse and recycling can dramatically reduce the amount of trash that people produce. The students collected and analyzed the contents of their lunch kits for trash reduction possibilities. As well, they collected community resources and information on recycling and began to plan ways to implement trash reduction in their classroom and school.

At the end of the fifth week, the team began to receive trash data from their teammates and started to look for similarities, differences and patterns in the data. Maps of network data were generated for comparison purposes. Dr. Hershkowitz, the unit scientist, also reviewed the trash data and discussed the implications of the research.

In closing, the NGS unit TOO MUCH TRASH? emphasizes important concepts and higher levels of learning processes that challenge students such as: working as scientists, investigating important and current scientific questions about trash; collaborating to generate communication and problem solving; using technology and telecommunications to exchange information; collecting data according to consistent scientific standards; organizing and displaying data using graphs and maps; interpreting patterns and drawing conclusions; and lastly; demonstrating how environment and culture are interdependent. The National Geographic Society's: KIDS' NETWORK connects students to worldwide opportunities for . learning.

Beatrice Gursky
L.E.A.P. Facilitator
Father Kenneth Kearns School

Skemp Activities for the Intelligent Learning of Mathematics

Marilyn Harrison
Calgary Board of Education

Mathematics, the problem subject

Once again newspapers are headlining the poor mathematics achievement of our students. The accusation is not new. Since the early 1960s there have been extensive efforts to improve the teaching of mathematics in our schools with discouraging results. Given that for almost 30 years, on both sides of the Atlantic, there have been intensive efforts by clever, hard-working, and well-funded persons, why are these problems still with us? Unless we can answer this question, at least in part, there is no reason to expect that the efforts of the next twenty years will be any more successful. But if we can find the answer, or at least a substantial part of it, the rewards will be great.

Skemp maintains that one reason for their lack of success is that most of these people have been looking in the wrong place, namely at the mathematical content of the curriculum. He believes that if the solution were to be found there, it would have been found long ago. Rather, a wider perspective is needed and he illustrates this perspective by telling the story of someone who came upon three stone masons as they worked. Asked what they were doing, one replied: "Carving stone", the second said, "Supporting my family" while the third exclaimed, "I am building a cathedral".

Needed, a wider perspective

To remedy the present poor state of mathematics education we need a wider perspective. First, we need to see it as a particularly powerful and concentrated example of the *functioning* of human intelligence. And second, as one of the most powerful and adaptable mental tools, which the intelligence of man has made for its own use, collectively over the centuries. Mathematics is a way of using our minds which greatly increases the power of our thinking. Hence its importance in today's world of rapidly advancing science, high technology and commerce.

If children are to succeed in learning maths they need to be taught in ways which enable them to bring their intelligence, rather than rote learning, into use. And common sense alone is not enough to enable us to do this, or we would have succeeded by now. We need a theory of intelligent learning.

Implications of Skemp's model of intelligent learning for the teaching of mathematics

To attempt in one hour to summarize Skemp's model of intelligence, together with its applications for the learning of mathematics is not possible. Rather, an attempt will be made to highlight some of the most relevant aspects.

Skemp (1978) has argued that "there are two effectively different subjects being taught under the same name, 'mathematics'". He contrasts *instrumental learning (rules without reasons)* with *relational understanding (knowing both what to do and why)*. Since relational and instrumental knowledge are so different, Skemp suggests that we regard them as different kinds of mathematics. Learners of any age cannot succeed at mathematics unless they learn by using their intelligence rather than by rote learning. The former follows naturally from Skemp's view that mathematics is ". . . a particularly powerful and concentrated example of the functioning of human intelligence" (1989a, p. 26). This is the kind of learning which he offers as a goal in the intelligent teaching of mathematics. The behaviourist theory which has influenced the teaching of mathematics for so many years is not without merit, but it describes those aspects of behaviour which we share with lower species. Skemp's theory describes those aspects of human learning in which we most differ from the laboratory rat or pigeon.

An essential feature of Skemp's model of intelligence is schematic learning which takes place when new concepts are *constructed by the learner*. Good teaching provides situations which encourage the schema-constructing activity of the learner and Skemp distinguishes three modes of building and testing (Skemp, 1989a, p. 74):

SCHEMA CONSTRUCTION

BUILDING	Mode	TESTING
from our own encounters with the physical world: experience	1	against expectations of events in the physical world: experiment
from the schema of others: communication	2	comparison with the schemas of others: discussion
from within, by formation of higher-order concepts: by extrapolation, imagination, intuition: creativity	3	comparison with one's own existing knowledge and beliefs: internal consistency

He goes on to explain that, "These are more powerful when used in combination, so good learning situations are those which provide opportunities for using all of these, though not necessarily in the same activity" (Skemp, 1989a, p. 87).

In order to help children build up their conceptual structures for long-term learning, it is vital that teachers try to ensure that at every stage the new concepts to be learned can be assimilated to the children's available schemas. "These ways include (a) sequencing new material schematically; (b) using structured practical activities; (c) beginning with a do-and-say approach, followed by written work only when the connections between thoughts and verbal symbols are well established" (Skemp, 1989a, p. 105).

Putting the present theory to use in the classroom

Skemp applied his theory to the classroom by producing materials for the teaching of mathematics in the form of over 340 mathematics learning activities for 5 - 11 year olds which were written and field tested over a period of eight years, and published as

Sturctured Activities for Primary Mathematics Volumes 1, 1a, 2 & 2a. He has just completed the Area network for a Measurement Unit.

It appears that in mathematics education a unique situation now exists in which a set of teaching materials has been developed in which each activity embodies not only a mathematical concept but also one or more aspects of a theory of intelligent learning.

Skemp (1989a) wrote:

> So by doing these with a group of children, both children and their teacher benefit. The children benefit by this approach to their learning of mathematics; and the teacher also has an opportunity to learn about the theory of intelligent learning by seeing it in action. Theoretical knowledge acquired in this way relates closely to classroom experience and to the needs of the classroom. It brings with it a bonus, since not only do the children benefit from this approach to mathematics, but it provides a good learning situation for teachers also. In this way we get 'two for the price of one', time-wise. (p.111)

The measurement activities which have just been developed will provide yet another opportunity for children to experience the intelligent learning of mathematics. That such learning can occur, even for those having difficulty, was nicely illustrated by a Resource Teacher in Calgary who had been doing remedial work with a group of Grade 5 students using multiplication activities from Structured Activities for Primary Mathematics. She reported that when the students' classroom teacher asked them to do some multiplication questions, they responded, "Should we do it the old way or the intelligent way?"

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Skemp, R. (1989b). Strucutured Activities for Primary Mathematics, Volume 1. London, England: Routledge.

Skemp, R. (1989c). Structured Activities for Primary Mathematics, Volume 2. London, England: Routledge.

AVAILABLE FROM THE UNIVERSITY of CALGARY BOOKSTORE: (403) 220-5937

Skemp, R. R. (1989). Structured Activities for Primary Mathematics, **Volumes 1, 1a, 2, 2a.** London: Routledge.

Volume 1	(K-2)	224 pages of activities	UofC Bookstore
Volume 1a	(K-2)	192 photo-masters	UofC Bookstore
Volume 2	(3-6)	256 pages of activities	UofC Bookstore
Volume 2a	(3-6)	192 photo-masters	UofC Bookstore

Skemp, R. R. (1989). Mathematics in the Primary School. London: Routledge. [Skemp theory written for teachers, 225 pp.]

Skemp, R. R. (1971, 1987). The Psychology of Learning Mathematics. Harmondsworth: Penquin. [The 1987 North American edition has a rewritten Part 2 that contains the substance, and more, of the UofC Skemp in-service course theory lectures.]

Skemp, R. R. (1979). Intelligence, Learning, and Action. Chichester: Wiley.

SKEMP VIDEOCASSETTES AVAILABLE FROM COM/MEDIA, THE UNIVERSITY OF CALGARY: (403) 220-3709

Contact COM/MEDIA for a complete listing. The videocassettes include Skemp introducing activities to groups of children, Skemp responding to questions about his theory, and Classroom Management Techniques.

The Role of Academically Talented Students in Moral Education and the Development of the Caring School (Is Morality Caught or Taught?)

Cledwn Haydn-Jones
Rocky View School Division #41

Talented and Gifted children are aware frequently of moral arguments and dilemmas at an early age (Kohlberg, 1961; de Bono, 1990). As well, bright students seem to enjoy cooperative learning (1991); CoRT thinking (de Bono, 1990); circle sessions (Glasser et al, 1978) and discussion in social studies and science that comprise controversial debate (Johnson, 1991).

Two educators recently, David W. Johnson and Ernie Sc~~l~~hepps, have articulated the need to provide students with stimulating enrichment experiences based on the nurturing of ethical awareness and the development of the caring school. Academically talented students are encouraged to take a strong leadership role in Ethics programs such as

- Critical Thinking Through Structured Controversy (Johnson, D.W. et al)
- Creating a Caring School Community: e.g Child Development Project, San Ramon Unified School District (Sclepps, E. et al).

Springbank Middle School (Rocky View School Division No. 41, Calgary) is considering teaming with San Ramon as well as integrating ethical issue strategies within existing curricula. Resource Programs (Level 4) serving primarily academically talented students, frequently focus on topics with affective and moral objectives (curricular; social; and schoolwide issues). Springbank is aware that the high academic achievement areas need to be balanced with 'high caring' goals.

In this presentation C. Haydn-Jones will review

(a) Moral Education in Alberta and a critique of the grade 8 Ethics Program of Studies
(b) Stages of Moral Development
(c) Gifted Students as ethically aware leaders and followers, and
(d) the leadership of the Gifted Student in the development of the caring school and inclass discussions on controversial issues.

MORAL EDUCATION AND THE DEVELOPMENT OF THE CARING SCHOOL
(IS MORALITY CAUGHT OR TAUGHT)

Cledwyn Haydn-Jones, Area Superintendent
Rocky View School Division No. 41

LESSON PLAN

A. No Pre test!

1. Introduction/'Anticipatory Set'

    (a) The World of Monty Python
    (b) Quotes from Alfie Cohn and Walt Whitman
    (c) John Child's observation on school values/school ethos

2. **Presentation**

    (a) Moral Education in Alberta: critique of the grade 8 Ethics Program of Studies (direct teaching)

    (b) Stages of Moral Development (Lawrence Kohlberg)

        i Helga simulation/group work
        ii Analysis of group responses
        iii Moral Awareness relative to moral development stages
        iv Moral Education lesson plan

    (c) Critical Thinking Through Structures Controversy (David W. Johnson)

        i Review of lesson plan
        ii Group Work i.e. rights of Brazilian Indians vs poor Amazonian farmers

    (d) Creating A Caring School Community: Child Development Project, San Ramon Valley Unified School District

        i Collaboration with Springbank Middle School
        ii Categories of Caring
        iii Group Work: practical suggestions

3. **Association/Reinforcement**

        i Review salient points of presentation
        ii The Good Question (1 per group)

4. **Application**

    no homework!

5. **Conclusion**

    Letter Home from College: morality ... relatively speaking!

B. No Post Test!

BEST COPY AVAILABLE

CRITICAL THINKING THROUGH STRUCTURED CONTROVERSY

Johnson, D; Johnson, R. Critical Thinking Through Structured Controversy (87) 52,6. Educational Leadership, Alexandria, VA

"Using academic conflict that exists when one student's ideas, information, conclusions, theories and opinions are incompatible."

Premises

1. Students must value and respect one another.
2. **Controversies must be defined as** interesting problems to be solved **rather than win-lose situations.**
3. **Groups of students should be heterogeneous i.e. discussions have to be "spirited and constructive in argumentation" in order to appreciate different views.**

Stages of Lesson

1. Choose discussion topic e.g. grade 8 Social Studies or Science program.
2. **Prepare instructional resource**
   - **(a) clear description of group's task**
   - **(b) description of phases of controversy procedures and collaboration**
   - **(c) definition of position to be advocated (summary of key arguments)**
   - **(d) resource materials.**
3. Structuring controversy within a cooperative context.
4. Constructing controversy.
5. **Learning a position.**
6. **Presenting a position.**
7. **Discussing issues.**
8. **Reversing perspectives.**
9. **Reaching decisions.**
10. **Wisdom of the philosophies** (duty vs utilitarianism; Kant and Mill)

Benefits

1. Moral discourse.
2. Similar to de Bono's CoRT Thinking.
3. Greater mastery and retention of subject matter.
4. Higher quality decisions.
5. Increase in creative insight.
6. Increase ideas (synoptics/brain-storming).
7. Increase feelings and open-mindedness.
8. Realization we need consensus and conflict to effect change.

"If we introduce normal discourse as a fundamental source of critical thinking, as a control of interactional logic and as a motor for generating a coordination of argumentative elements, then neither inculcation nor value - free socratic teaching is acceptable ...such discussion implies confidence in human interactional reasoning that tends towards universal liberating morality. This discourse is not only related to actions but is action itself."

David W. Johnson

Cledwyn Haydn-Jones

Classrooms with Growing Room

Lannie Kanevsky
Simon Fraser University

Note: A more extensive version of the comments in this paper can be found in the Fall, 1992 issue of *AGATE, Volume 6, No. 2* (Journal of the Gifted and Talented Education Council of The Alberta Teachers' Association).

One of the many images in transition in education is our conception of good education. Rather than searching for the "right way" to educate all students, we are becoming increasingly aware that education is not a "one-size-fits-all" enterprise. The education system needs to offer a range of sizes and styles to accommodate individual differences in sizes and growth rates. Parents often purchase clothes for their children with room to "grow into". They expect the next growth spurt, and the next.... Educators also monitor and plan for growth. However a gifted student is only one in a class of twenty-five or thirty students who are often expected to share a limited wardrobe of resources and curricular activities. That is all the administration and the teacher feel they are prepared or can afford to provide. For some the clothes will be so large, they stumble over them. For others, the clothes will be an appropriate fit and the student will move comfortably through the tasks provided. And then, there are the students who have already outgrown all or parts of the wardrobe. In addition, they may find the contents dull, or the styles not to their taste. The metaphor could be extended endlessly. The gifted student needs a curriculum with more room to grow than is often provided in traditional materials and instructional strategies that dominate current practice.

Schools should offer all students activities and an environment that not only expects growth to occur naturally, but encourages it. This means providing tasks with high ceilings, or no ceilings, broad scope, and coherent sequence. In addition, the activities should encourage students to build connections between facts, concepts principles and generalizations in one subject area to those in other areas, and an understanding of when, how and why to use knowledge gained in one setting or on one type of task to other settings and other types of tasks. We have a prime opportunity to take advantage of the educational reform movement and recent research on learning and the psychology of development in our efforts to provide gifted students with good education.

It has become apparent that in our efforts to create comfortable learning environments and materials we may have reduced the opportunities to develop higher level intellectual skills. In the past, teachers were trained to offer students lessons they would be able to complete quietly and independently at their desks. The lessons were a "good fit" for the child's current level of development. Now, it seems that for thinking skills to develop, an individual must be put in the uncomfortable position of finding their current skills inadequate. They need to be challenged with tasks they cannot complete without interacting with peers or a teacher. This motivates the learner to find a new and better way to develop a more sophisticated way of thinking to meet the challenge. The extent to which children benefit from tasks beyond their actual level of development, into their "zone of proximal development", varies with the individual's learning or intellectual ability (Vygotsky, 1978). The brighter the student, the broader the zone of proximal development. It is the cognitive psychologist's equivalent of "growing room". It is the range of tasks beyond those that a child is able to complete alone that a child can learn, with assistance, to perform independently. These are tasks in which the child should be engaged in order to promote the growth of new and more sophisticated intellectual skills.

This approach to learning has huge implications for current conceptions of what classrooms should look like, sound like, contain, and how they should operate. Instead of orderly rows of silent students with their heads bowed, pencils in hand, recording answers to questions from the end of the chapter on ecology, we are seeing noisy groups of children planning and implementing studies of the impact of litter on the neighborhood environment. What they don't know how to do, they ask to learn. They are engaged, they are excited! These experiences can and should be offered to all learners in the regular classroom.

There are special benefits for the bright, gifted, talented and creative students in this vision. Having the greatest ability to grow, they are the students who have suffered the most from the low task ceilings, restricted range of activities and the passive learning environment.

Many advocates for special programs for gifted students assess the outcome of their efforts by counting the number of pull-out programs operating in their school district(s). Recent fiscal restraints and inclusive education policies have reduced the number of these programs. Lurking in what appears to be a grim trend is a shining opportunity for regular classroom educators to meet the needs and nurture the abilities of gifted children in every school day, rather than expecting their needs to be met by another teacher, in another room, one day each week.

Admittedly, attempting to provide growth promoting challenges in the regular classroom brings its own set obstacles. They are not simple problems, therefore simple answers will not suffice. Maker (1982) proposed a system for developing curriculum appropriate for gifted learners which is based on the behaviors each individual demonstrates as he or she is engaged in learning activities in their areas of interest and strength. The principles she describes for curriculum development can also be used to guide the modification of regular classroom lessons to provide more growing room in them at no cost to the school or teacher. In addition, they are consistent with the changing roles of the teacher and the learner suggested by current educational reform movements. Maker's principles can also assist efforts to nurture the development of self-directed, self-monitoring, independent, lifelong learners with flexible knowledge bases that can be applied and generalized in a number of settings within and beyond schools.

Knowing that some educators will challenge bright students and others will not, it is critical that those who do will make some effort to equip those students with some goal-setting, self-monitoring and negotiating techniques that will enable them to take some initiative when they begin to feel boredom creeping in. As an example, a teacher desiring to arm students against boredom could introduce what Maker (1982) called "freedom of choice" into plans for one or more students. This might be done by offering students the opportunity to develop independent study contracts. The teacher would let the students choose or propose the topic as a group or as individuals rather than suggesting or selecting it; engage the students in a discussion to determine the size and duration of the activity; monitor progress together, require self- and group evaluation as well as offering feedback from the teacher's perspective; talk about how to set goals, select topics determine how much time to allow for certain tasks, how to select criteria for evaluation and be a fair judge of a piece of work. In the future, with other teachers, a student may consider proposing an independent study contract when their assigned work is less than challenging. This action is a much more attractive alternative than some others, such as underachievement, disruptive outbursts, withdrawal, etc.

All children need to develop these skills, however they take on an additional degree of importance when self-regulated learning becomes a student's best defense against boredom. With some knowledge of how to manage their own learning, they can take the initiative when the classroom offers less than enough. There is so much more to learn than is reflected in the curriculum that is foolish to let students grow up with the impression that they will learn all they need to know in school. Instead they should be encouraged to learn how to learn for the rest of their lives.

In closing, a final transition will be suggested. In the midst of the curriculum revision suggested, yet another golden opportunity exists. Much of the literature advocating for special services for gifted children demands that their needs be met. I would look beyond the goal of simply meeting any student's needs to promoting optimal development of potential. "Meeting needs" has a ring of minimal satisfaction. With a shift in perspective toward optimal development as a goal of education, students will be able to explore their growing room, and that of their classmates. New "gifts" will emerge and be shared. These bold suggestions will take commitment and time but they can be initiated on a small scale and on an individual basis. But nothing will happen unless we each commit to exploring the limits of our own potential to optimize our ability to challenge all learners in search of gifts.

References

Maker, C. J. (1982). Curriculum development for the gifted. Rockville, MD: Aspen.

Vygotsky, L. S. (1978). Mind in society. Cambridge, MA: Harvard University Press.

Content Modifications adjust the content of the lesson to take advantage of the bright student's ability to build a richer, more diverse, flexible, efficiently organized knowledge base. Types: Abstractness Complexity Variety Study of People Methods of Inquiry	**Process Modifications** adjust the manner in which thinking, or feeling play a role in the learning in order to take advantage of the extraordinary information processing capabilities of these students Types: Higher levels of thinking Open-endedness Debriefing/Proof of Reasoning Freedom of Choice Group Interaction Pace Variety
Product Modifications adjust the outcome of an activity, the manner in which it is shared and/or evaluated. These modifications provide bright students with an opportunity to manifest their abilities in a product that reflects their potential to produce and contribute, rather than their potential to consume what has been produced by others. Types: Real Problem Real Audience Transformation Evaluation	**Learning Environment Modifications** adjust the nature of the setting and materials in order to amplify the benefits to be gained from the other modifications. They also increase the similarity between the tasks and settings in the learning environment and those that students are expected to encounter in the real world to promote transfer. Types: Student-centred Independence Openness Acceptance Complexity High Mobility

Table 1. Definitions of, rationales for and types of lesson modification strategies.

Playing Smart: Enrichment in the Home

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Children don't need to learn while they play, but they often do learn, incidentally or accidentally. Knowing this, a parent can take the opportunity to nurture the child's development. This opportunity, however, should not be abused as play also offers the children time to practice skills and enrich connections between new knowledge and old. Keep it fun! Children should be encouraged to play with individuals who are younger and older, more and less skilled. One thing is certain, smart people are always learning from those around them. This is an orientation that can be reinforced throughout childhood.

Vygotsky's (1978) theory of the development of higher intellectual processes is based on his belief that "good learning is in advance of current levels of development". He also proposed that this development is the result of the progressive internalization of what a child experiences first in social interaction with a more able person. The more able individual may be younger, older, or of the same age. She is simply more knowledgeable about the task at hand. Most parents and teachers have observed this phenomenon in action. The adult completes a task with the child, sharing the activity and talking their way through it. Later, when attempting the task independently, the child may be heard talking to herself, reciting the parent's word verbatim. This is simply an example of the child having internalized the words of the more able adult in her efforts to master the task independently. Later the child will hear the words in her mind, without needing to speak them. Finally, the skill will become automatic and no speech will be needed, silent or spoken, to facilitate task completion.

This process has been described in order to contextualize the type of play to be encouraged in this workshop. It is play that initially occurs in a social context, not independent play. Playing "smart" is a phrase I use to capture the kind of play that initiates and promotes the development of the flexible, fluent thinking when children are faced with new challenges. This includes a willingness to accept the challenge, to relish the opportunity to be wrong, to learn from mistakes, and to experience failure in a safe environment. Often bright children are praised only when they are "right" and come to feel they are only valued when they can produce the right answer. Right answers have their place, but so do mistakes and dead end solutions. The latter can show us what doesn't work so we don't take that path again. They force good problem solvers to generate alternative solutions, the test them, to evaluate their efficiency, and worthiness.

As a child's first teachers, parents are powerful models for behaviors and attitudes related to the kind of learning that emerges from situations where current ways of thinking and levels of skill are not sufficient. New ideas must be generated and tested. When engaging in play with their children, parents must keep the child's primary goal for play in mind—FUN! Beware of turning play into work, or school. Turn work and school into fun, but don't take the fun out of play. As was stated in the opening, children can and do learn while playing, but they don't always need to learn from play.

The characteristics of "smart" play activities will be described in the next section. The list is not exhaustive. It is intended to focus attention on the features of activities that promote the development of skills and attitudes that are of critical importance to an orientation towards learning as a lifelong endeavor. It can happen anywhere, anytime. It can involve being right, or wrong, or a bit of both. Sometimes the result of one's efforts can be seen immediately; in other situations we're left waiting for an indication of the outcome for an indefinite period of time. The reading will close with a list of materials that parents might consider when looking for productive play activities.

Characteristics of Smart Activities

1. Interaction with a more able individual

The need for someone to talk to when one wants a child to learn something new from a challenging activity was described earlier. When playing, the social dynamics of the situation may overwhelm the potential for intellectual benefits so the nature of the interaction must also be considered. Will the children attempt to teach each other, cooperate or compete? All children are sensitive to the competitive context of many play activities. Both competition and cooperation have their place in the real world. Although it is necessary for children to learn to compete, to lose and to win, cooperative activities often provide a safer environment for the risk-taking involved in testing new knowledge. These dynamics may emerge when the child is playing with a peer, sibling or an adult. Observe the differences in the benefits when it happens in your own home.

2. Choices

All children, and bright children in particular, are capable of making decisions. Often adults underestimate this ability. Children can and should suggest and choose activities, how to play, where to play, alternative ways to do something.

Young children and older, inexperienced decision-makers can be given two options to choose from initially. Then the list can be expanded to three. Eventually they can be offered three or four and the opportunity to suggest their own idea. When offering children the opportunity to choose or suggest, a parent must be prepared to allow the child to pursue the choice. Don't offer control and then attempt to coerce the child to change because "you know better". Let your children try and fail rather than protecting them from a struggle. As long as they will not be harmed, they may emerge with an unexpected but valuable lesson from a less than optimal choice.

3. Open-endendness

Look for activities with more than one right answer, more than one solution, more than one way of anything. This extends the life of a toy or activity. Bright children bore quickly when the activity has a limited number of challenges and solutions.

4. Multiple levels of difficulty

Does the activity grow with the child's skill? This may be the most addictive feature of Nintendo games. A player can only progress to a certain level with one strategy. Eventually, a player must develop a new strategy and learn when to use the old or the new. The rewards are immediate—the point totals climb. As players learn when and how to use new strategies they also move on to higher levels and accumulate points. This is a prime example of growing room in a game. Nintendo is not the only example. Chess is another. It too can be successfully played at a number of levels of complexity. These tasks require a basic understanding of the rules, but have a "high ceiling" as children can develop more and more sophisticated skills with time, practice and interaction with more able players.

5. Complexity

Smart activities involve rich, confusing, messy understandings. There are an infinite number of connections between knowledge gained from the play activity and other experiences are numerous and diverse. Many parents are astounded by the richness of the imaginary world that exists in their backyard when they interrupt a fantasy adventure game involving two or more children. In this context children develop and honor laws, maintain and expand their characters over days and weeks. Simply managing the complexity of what is involved in the play activity is a challenge the child can learn from and monitor.

6. Luck or chance factor

We live in an unpredictable world. Like many challenges children will experience in their lives, when luck is involved, intellectual ability loses its position of dominance in determining success. When playing with siblings or peers of different ages, a chance factor adds unpredictability to the outcome that defies age, knowledge or skill. Therefore, a younger child might win without experience or skill.

7. Opportunities to learn from mistakes

Mistakes are just another way of doing something. Many bright children have limited experience making and understanding mistakes as they are less often offered opportunities to be wrong. Age-appropriate puzzles and problems are no challenge. Parents often look for games children will enjoy immediately, rather than those that take time to learn and understand, and provide prime opportunities for blundering. Mistakes are a great indicator of growing room and increase the need for models who are also willing to try, to be wrong, and to grow from the experience.

8. Reflection time and talk

During and after a challenging activity, reflect; talk about the "how". How are you thinking about it? What did you learn? Are you improving? What other ways could you have done it but you didn't? Why didn't you? How did you remember the rules? How do you remember all of the strategies that didn't work so you don't repeat your mistakes? Give this kind of talk real time. A rough guideline would be to spend two-thirds of the time playing and one-third describing your thinking and asking the child to describe his or hers. Children under the age of 7 may not be able to discuss their thoughts as they "just happen", but older children will often enjoy hearing how others minds work and comparing it to their own.

9. A smorgasbord of thinking and feeling opportunities

Children should be offered a variety of smart activities that encourage the development of all kinds of thinking. Activities can involve fantasy, problem-solving, deductive thinking, logic, divergent thinking, evaluation, planning and many more kinds of thinking and feeling. Children should be encouraged to explore them all rather than honing a single set of thinking skills. Even within a single area of passion, astronomy for example, children can engage all of the processes mentioned above.

Few activities will have all of the characteristics described above. Each offers "players" different developmental benefits. The list that follows provides a starting point for parents searching for "smart" play activities.

Materials published by Free Spirit Publications

Contact for catalogues, prices and ordering: Claude Primeau & Associates, Attn: Lori McLaughlin, c/o Harper Collins, 1995 Markham Rd., Scarborough, Ontario, M1B 5M8, telephone (416) 321-2241, FAX (416) 321-3033.

Bringing Out the Best: A Resource Guide for Parents of Young Gifted Children
By Jacqulyn Saunders with Pamela Espeland

Playing Smart: A Parent's Guide to Enriching, Offbeat Learning Activities for Ages 4-14
By Susan K. Perry

The Gifted Kids Survival Guide: For Ages 10 & Under
By Judy Galbraith

The Gifted Kids Survival Guide: For Ages 11 & Over
By Judy Galbraith

The Gifted Kids Survival Guide II: A Sequel to the Original (for Ages 11-18)
By James Delisle & Judy Galbraith

The Survival Guide for Parents of Gifted Kids: How to Understand, Live with, and Stick Up for Your Gifted Child
By Sally Yahnke Walker

Perfectionism
By Miriam Adderholdt-Elliot

Materials from the National Science Teachers Association

Contact: National Science Teachers Association
1742 Connecticut Avenue, NW
Washington, DC 20009-1171

Flights of Imagination: An Introduction to Aerodynamics
By Wayne Hosking

The Whole Cosmos: Catalog of Science Activities
By Joe Abruscato & Jack Hassard

Materials from Other Publishers

3D Puzzles
By Alan Robbins
Dell Publishing, New York

A Handbook for Parents of Gifted and Talented
By Jeanne L. Delp & Ruth A. Martinson

Amazing Mazes
By Rolf Heimann
Contact: Doubleday Canada Ltd., 105 Bond Street, Toronto, Ontario M5B 1Y3

Anti-Coloring Books (I, II, & III)
By Susan Striker
Contact: Holt, Rinehart & Winston, 383 Madison Avenue, New York, NY 10017

Brain Boosters: Logic, Science, and Math Games for Ages 6 - 12
By Sidney Martin & Dana McMillan
Monday Morning Books, Inc Box 1680, Palo Alto, CA 94302
[Also available: More Brain Boosters, by Dana McMillan and Sidney Martin, same publisher]

A Calendar of Home Activities
Cost: approximately $1. (US)
Available from: Curriculum Associates, Inc., 5 Esquire Road, North Billerica, MA

Eye Cue Puzzles (4 Puzzle games in each set; to develop visual thinking skills)
Dale Seymour Publications, P. O. Box 10888, Palo Alto, CA 94303

Family Math
By Jean Kerr Stenmark, Virginia Thompson & Ruth Cossey
Contact the Lawrence Hall of Science, University of California, Berkeley, CA 94720

Fold Your Own Dinosaurs!
By Campbell Morris
Contact: Angus & Robertson Publishers, Unit 4, Eden Park, 31 Waterloo Road, North Ryde, NSW, Australia 2113

Googolplex
Contact: Arlington-Hews, Inc., Box 23798, Vancouver Airport P. O., Richmond, B.C. V7B 1X9

Human Brain Coloring Book
By M. C. Diamond, A. B. Scheibel & L. M. Elson (Harper & Row, New York)

Invention Book
By Steven Caney (Workman Publishing, New York)

The Mysteries of Harris Burdick
By Chris Van Allsburg
Publisher: Houghton Mifflin, Boston

Parents' Guide to Raising a Gifted Child
By Jim Alvino (Ballantine Books, New York)

Weather Forecasting: A Young Meteorologist's Guide
By Dan Ramsey (TAB Books, Blue Ridge Summit, PA)

Magazines

Zillions (Consumers Reports for Kids) 6 issue subscription $17.95 US, P. O. Box 54861, Boulder, CO, 80322-4861

GAMES, 6 issue subscription $22.97 US, One Games Place, P. O., Box 55481, Boulder, CO 80322-5481.

Lessons Without Limits

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Note: A more extensive version of the comments in this paper can be found in the Fall, 1992 issue of *AGATE, Volume 6, No. 2* (Journal of the Gifted and Talented Education Council of The Alberta Teachers' Association).

When a student approaches a teachers desk and either announces or mumbles, "I'm bored", the unspoken phrase that completes the thought in the minds of both the student and the teacher is, "...and its your fault". In traditional, teacher-centred classrooms, this rang true. If the teacher had assumed control of learning, it was his or her fault, because the teacher was also in control of boredom. Boredom is a cue to the teacher that the limits on learning are too constrained for this student. This is a distinct contrast to the classrooms of today where responsibility for learning is the shared responsibility of the student and teacher. Therefore, today's teacher's response to the student announcing boredom is, "So, what are we going to do about it?" In this workshop, educators were introduced to a systematic approach to "what to do about it" when gifted students are involved.

This system does not depend on test scores or on a student having been "identified" gifted or selected for special programs. Test scores are often necessary for budgets and labelling—not the initiation of appropriate service in the regular classroom.

The system is driven by two pieces of teacher-held information. Teachers can get the first piece of information by watching students to gain a sense of what engages them, what empowers them, what they thrive on, what they care about, their intensity, the source of achievement motivation, etc. This information can be used to guide the selection of the curriculum modification strategies that are likely to engage and benefit a particular bright student to the greatest extent.

Second, the system is driven by that nagging feeling that you aren't doing enough to challenge one or more students in your class, otherwise known as guilt. All under-challenged students in your class may not approach you to announce their feelings, but in the majority of cases, you know. This system offers a guilt-management procedure to determine where to begin to challenge the student and how.

Maker (1982) proposed a procedure to meet this challenge. As mentioned in "Classrooms With Growing Room" (the reading preceding this), Maker's chart and procedure will be adapted for modifications of regular classroom lessons rather than the development of a special curriculum for use in a separate gifted program as originally intended.

In order to apply the procedure in your own classrooms, teachers will need three additional types of information: an observation of the student, the objective of the original, unmodified task, and a basic understanding of the modification strategies. A brief comment on the last of the three is needed. Due to the number and nature of the strategies, they will only be listed here (see Table 1), however, readers are encouraged to refer to the first four chapters of Maker's book, Curriculum Development for the Gifted, for extensive descriptions, examples and the research base on which she founded her recommendations.

The observational data on the student is collected using an abbreviated version of a chart Maker developed to synthesize what we know about how gifted students respond to intellectual challenges, and how teachers can design instructional activities for gifted students who respond in particular ways. The chart is based on the assumption that gifted students differ from each other, and therefore our responses to these differences should be sensitive to the characteristics of the individual learner. Due to copyright restrictions the chart could not be reproduced in this document however it is available on request from Dr. Lannie Kanevsky, Faculty of Education, Simon Fraser University, Burnaby, BC, V5A 1S6.

The observations are guided by shortened items selected from the Scales for Rating the Behavior Characteristics of Superior Students (Renzulli, Smith, White, Callahan, & Hartman, 1976). These appear in a column down the left side of the chart. They are preceded by one column of boxes in which the teacher places a check mark if the neighboring characteristic is true of the student being observed. All observations are made while the student is engaged in a challenging activity in his or her area of greatest strength or interest. Focusing on one area will ultimately provide the teacher with information to guide modifications of tasks in the student's area of greatest need. In addition, it acknowledges the fact that gifted students are not equally "gifted" in all academic areas. Neither do they respond to content from different areas in an identical manner even when they are equally able in a number of areas. As a result, instruction can only be appropriately modified in a manner that reflects the ways that a student behaves in one area when it is based on information that has been collected in a manner consistent with this knowledge.

The second piece of information required to drive the modification process is a clear understanding of the content objective of the lesson the teacher intends, ultimately, to modify. Exactly what is it that the average learner would be expected to know or be able to do, and how well should they be able to do it, at the conclusion of the lesson. This information is critical for two reasons. First, it will be needed to test the quality of the modified lesson once this process is completed. If the modified lesson has the same content, the teacher can defensibly respond to any questions about the appropriateness of this activity from the student's classmates, parents or colleagues. "Why does she get to do _____ when everybody else is doing _____?" If a lesson has been modified in response to the behaviors of the student when working in this content area, the teacher can respond by describing the process used to individualize the coverage of the content (based on the related literature). The chart provides a welcome rationale and defense.

A second advantage of having the same learning outcome in the original and modified lesson is that it enables the teacher to evaluate the lessons, if need be, in the same manner for reporting purposes. If the modified lesson does not have the same outcome embedded in it, then the modified lesson is different, rather than differentiated. This puts the classroom teacher in a relatively less defensible position. The teacher has no evidence that the gifted student has learned the content of the original lesson. Thus there is no guarantee that the student has mastered that content and deserves something different.

Table 1 indicates the four modifiable dimensions of any lesson (content, process, product and learning environment), and lists the modification strategies that might be applied to each dimension of any lesson. Each of these modification strategies heads a column across the top of the chart described earlier. Thus the behavior characteristics run down the left side and the strategies create columns across the page. If a particular strategy is recommended for a child who demonstrates a particular behavior characteristic, an "X" appears in the box created by the intersection of the row containing the characteristic and the column for the strategy. If not, the box is empty. By tallying the number of X's appearing in boxes related to characteristics observed, teachers can calculate (or guesstimate) the proportions of X's in each column that were relevant to that student's behavior. The strategies with the greatest proportions are considered to be the strategies most recommended to modify lessons for this student.

Applying one modification strategy to a lesson is a good start. More than one is optional as other modifications often emerge incidentally as a result of intentionally creating the first. A teacher can feel free to choose from those with the highest proportions. Once selected, the teacher's creative powers come in to play. It is up to the teacher to generate a modified version of the original lesson that can complete the following sentence:

If I modify __(certain components of the lesson)__ by

__(making the recommended modification)__,

then the bright student will have learned

__(the core content in the unmodified lesson)__ as well as

__(an additional learning benefit resulting from the modification)__.

It is the benefit mentioned in the last blank that indicates the nature of the growth and growing room a teacher expects to result from the modification. This is where the limits on learning expand.

Time is always an issue in any lesson, and it is a particular concern when the original and modified lesson are intended to run concurrently. Both should require the same amount of time to complete. If the modified lesson takes less time, what will the student do to fill the time remaining. If it takes longer, is the more able student being punished with additional work?

Once a modified lesson is created, the teacher may want to consider offering it to all students in the class. In some cases, the entire class will be able to achieve the objective of the unmodified lesson by completing the modified version. Let them! Expand the limits for all. Withholding this opportunity is elitist. If the lesson is too challenging for all, but appropriate for some, let the more able students work as a group. There will also be modified lessons that are inappropriate for any student other than the student of greatest concern and should not be offered to others. There are no precise rules for making this determination. Professional judgement is your best guide.

How often should lessons be modified? As often as possible remembering that it is necessary to manage the learner's needs and the teacher's guilt, but without endangering the teacher's sanity. A teacher has so many competing demands for time and energy these days that the "how often" question is one that needs to be answered by each teacher on an individual basis. Once a week is better than nothing. More often increases the benefits.

Efforts to challenge bright students in the regular classroom can and should be defensible, individually appropriate, and systematic. This procedure can ensure all three. Although a lesson may be appropriately modified, a student may not always respond as expected. Trial and error is the best approach as a modification may work one day and not the next. Sometimes a teacher's efforts in searching for ways to challenge a student will encourage the bright, bored student to engage even when the lesson does not strike the perfect chord. It may be the willingness to try harder that will be shared by the teacher and the student in their joint efforts to expand the limits on learning.

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Renzulli, J. S., Smith, F. H., White, A. J., Callahan, C. M., & Hartman, R. K. (1976). Scales for rating the behavior characteristics of superior students. Mansfield, CN: Creative Learning Press.

Multimedia Technology and Kid TV: A New Approach to Learning

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In order to be successful today, children must be flexible in a changing environment, be able to problem solve in groups, and to communicate. To do this, they must be taught, at an early age, to take responsibility for their own learning and be informed and accountable for their own actions.

The *Multimedia Technology and Kid TV* project was an attempt to address these concerns by changing the way teachers interact with children and by changing the way children learn. The most important factors from the researchers' point of view is an attempt to improve the self image and self motivation of children by improving their ability to communicate; to produce high quality materials; and to demonstrate good decision making skills.

This paper provides a brief description of multimedia, then details the *Multimedia Technology and Kid TV* project, followed by a review of the preliminary findings, and a discussion of implications for the future.

Multimedia

In this paper, Multimedia refers to the integration of audio, visual, graphics, text, and computer technology. Unfortunately, multimedia cannot be easily quantified. In teaching children how to use multimedia, it is important to emphasize that there are no rules. Each multimedia project is a unique and very personal experience. Producing multimedia is like sculpting, there are no guidelines. Tools plus ideas equal multimedia. If you teach students how to use technology, they can use their own ideas to develop new and exciting creations.

Multimedia projects range from simple computer graphics with music such as the animated Courante (a Snoopy story to music) which is activated by clicking a mouse and was developed by a very creative student; to very expensive interactive laserdisc based programs which incorporate broadcast quality audio and video, together with computer graphics and touch screen control.

The Project

If one enters almost any grade school class at the beginning of the day, children are usually waiting to be told what to do next. If one asks the students what they will be learning, they may know when it is math class or social class, but it is unlikely that they will know the objectives for that day, or for the week, month, or year. The teacher may have extensive lesson plans, but these are rarely communicated to the students. By not knowing the plan, or being a part of the plan, it is difficult for the students to have any commitment to what they are learning. The students are passive learners, waiting for the teacher to direct, not just each day, but for each hour.

The *Multimedia Technology and Kid TV* project was trial tested on a group of grade six students. They were handed an outline of the project, including purpose and activity lists, and told that they would be part of the decision making process with regard to the content and timelines necessary to complete the various project components. They were also told that the purpose of the project was to:

> Create an environment where the student begins to take responsibility for his or her own learning, is required to be accountable for his or her actions, and is encouraged to develop good communication skills. This program will enhance the student's ability to write, reason, plan, speak, show leadership skills, create, make decisions, keep detailed records, and cooperate.

The project was entirely voluntary, and children, parents and teachers were given the option to participate. There were seven children in the pilot project. Figure 1 gives a visual representation of the project goals.

Figure 1

Ideas
Deciding
Organizing
Writing
Creating
Managing
Producing
Kids Communicating

Children were also told that by the end of the program, they should be able to:

- prepare and narrate a story onto an audio cassette by appropriately using a microphone
- interview a fellow student and record the interview onto an audio cassette
- use a video camera and microphone including: focus, zoom, light adjustment, camera set up and take down
- interview a fellow student in front of a video camera
- draw a picture, write an accompanying story, and record the picture and narration onto videotape with accompanying music.
- Create a poem, prepare a picture to highlight the poem, and videotape the picture and narrate the poem with music.
- work in groups to draw a story, write the accompanying narrative, and narrate and record the pictures onto videotape
- work together in groups to develop an animated story and to record animation onto video with narration and music
- work in groups, develop a script which teaches a physical skill, prepare a story board, a shot list, and shoot, narrate and edit the program for presentation to other students

- learn how to write scripts for television stories
- learn how to set up and use video equipment to present previously recorded video as well as live television including: wiring, audio mixers, camera switching, and recording
- learn the 5 W's of covering a story
- interview personalities (e.g. special visitors to the school)
- record onto videotape, special events which occur in school and on special school outings, and edit onto video tape for later broadcast
- work in groups to develop a live news broadcast while alternating responsibility for production management, camera work, editing, reporting, anchoring, and working the audio and video mixers
- prepare a TV news script and read the news in front of the camera with interviews; video clips of the actual story, and voice over onto existing videotape.

In addition, students should be able to:

- use a computer keyboard
- use word processing, graphics, spreadsheets and hypermedia
- create a computer graphic and record the graphic onto video with narration and music
- prepare and give a presentation which incorporates computerized overheads using Hypercard

In order to learn how to do the skills and activities listed above, a number of sessions with special instructors were planned including:

- a radio personality to teach students how to speak into a microphone, and how to have confidence in the sound of their own voices;
- a technical writer to teach students how to write scripts for television and radio;
- a camera person to teach students how to set up and use cameras;

Also, students were scheduled to visit:

- a video production centre,. and
- a television news set

The Evaluation

Students participated in the multimedia and Kid TV project for two hours per week for one school year. During the year, ninety percent of the tasks listed above were completed. This included two live news broadcasts which were wired by the students, to three areas in the school so that their schoolmates, teachers, and parents could watch the broadcasts. At the end of the project students were asked to evaluate their ability to do the tasks on a rating scale of yes/no for each skill or task. In addition, the students were asked to comment on:

- The things they learned
- The things they enjoyed most
- The things they enjoyed least, and
- Suggestions about how the project could be improved.

Their teacher was also asked to rate their success at accomplishing the tasks on a yes/no basis for each student. Moreover, other teachers who knew about the project were asked to prepare written comments. Parents provided spontaneous feedback about the project.

Results

Rating Scale

Children rated themselves as having completed between 62% and 100% of the 32 listed activities. Average mean rating was 86% (median = 88%). The teacher rated the children as having completed between 72% and 100% of all 32 listed activities with an average mean rating of 91% (median = 100%). The inter rater agreement between teacher and student ratings varied from 66% to 100%.

Comments in the students' own words

The things they learned

set up the camera and audio; typing skills; write stories; hook ups like the switcher, and mike; technical writing; going on air live; how to tape; speak on camera; be less nervous; did lots of language arts while doing the project; edit stuff.

The things they enjoyed most

going on field trips; filming; working with classmates; learning how to do different things; doing technical stuff; the satisfaction after we did a broadcast; doing a live production; being able to do two live broadcasts

The things they enjoyed least

Did not like the fighting; took a long time; did not enjoy hooking up because it was confusing; speaking on camera in front of everyone; at first it was kind of annoying when you try to learn but you can't but it got easier; didn't like the pressure or when people asked you to do something you didn't know; I really enjoyed everything

Suggestions about how the project could be improved.

more equipment; bigger classroom and more people; more rehearsals and working on things before told to; more organized; use time more wisely; it was a great year;
The classroom teacher stated that:

The students ultimately derived a sense of satisfaction from the completion of projects as well as developing a sense of team work which they needed as a group. This cohesiveness carried over into other class projects.

Another teacher noted that:

the children learned how to use a wide variety of media, but I am uncertain as to how this influenced their academic subjects aside from giving the students a sense of accomplishment which would impact on their self esteem.

The major concern of teachers was the integration of the project into the Alberta Curriculum, and the time it took away from regular program.

All the parents responded very favourably to the project. Two parents stated that it was the best part of the school year for their child.

Implications for the Future

When children start school at age five or six, they usually come with lots of enthusiasm, curiosity, and energy. When children are interviewed six years later, their levels of enthusiasm and curiosity have been substantially reduced (i.e. young children look forward to going to school- the older they get, the less they look forward to it). The multimedia and kid TV project rekindled that early enthusiasm. Attendance at the weekly meetings was higher than for any other day in that week. The quality of the broadcasts was beyond even the researchers' expectations. A local TV station did a story on the Kid TV project, which was very well received. The cost of the equipment necessary to implement the program was less than $2000 and most of that was donated. Moreover, the level of technical expertise expected of the teachers was minimal. The basics of developing multimedia programs can be taught to most teachers in less than twenty hours of instruction. Moreover, the students quickly learn the skills necessary to run the operation, leaving the teacher in a primarily consultative role. Teachers can expect to spend two hours a week running such a program. Time well spent when one considers all the skills the children learn.

The objective of this project was to unlock the potential of the students through innovative experiences which challenge the students to take an active role in their own learning. With careful planning, this participation can be directed toward achieving educational goals which will alleviate the teachers' fears of not reaching their curriculum mandate.

A good learning environment should excite and challenge students, and should encourage them to actively participate in their own learning. The multimedia and Kid TV project is one tool for accomplishing those goals.

Who Benefits Most from Shad Valley?

Tom Keenan
The University of Calgary

Abstract

Since 1981, the Canadian Centre for Creative Technology (1) in Waterloo, Ontario has run the Shad Valley summer program for gifted teenagers. This widely-acclaimed, one month "science/business camp" is sponsored by industry, and now involves upwards of 400 students every summer. They study key disciplines in science, mathematics, and technology and also receive a grounding in business and entrepreneurship, in groups of 50 each at eight University campuses across Canada. Shad Valley is not a place, it is a state of mind.

According to its organizers, Shad Valley is directed at "the upper 2% of grade 11 and 12 students nationwide, particularly those who are gifted in science and technology." This loosely defined target is operationally selected by an application form which is completed by prospective students and then ranked by academic staff members who teach in the program nationwide.

Having launched the Shad Valley program in Calgary in 1984, and taught in it every year since, I have developed some concerns about the adequacy of this selection process. While we are certainly getting many excellent students, we also seem to be getting some who are there primarily because Shad Valley has become "the ultimate merit badge," something that looks good on your resume and college applications. This violates the original spirit of the program, which involved getting adventurous young people together for a motivational as well as an academic experience. And we are undoubtedly missing some wonderful students who should be in the program. Some suggestions are made for getting Shad Valley back to its core values.

Shad Valley -- Who Benefits?

There are a number of groups that benefit from Shad Valley, directly or indirectly:

-The **Universities** that host the program are able to show off their personnel and facilities to top high school students. Since Shad Valley was founded, several other programs (e.g. the recruiting activities of the University of Waterloo; the Computer Science research days) have arisen to achieve a similar goal.

-The **Sponsoring Companies** get: an enthusiastic summer employee; a potential future employee; a better trained labor force, in touch with the real needs of industry.

-**Society at large** gains because of the motivational effects of Shad Valley on students who are already identified as Gifted and Talented.

-**Parents of "Shads"** have a high quality, low cost way to occupy a key summer in their teenager's development. There is also the potential for travel and for a meaningful summer job for the balance of the summer.

and of course,

-The **Shad Valley Students** get a very significant summer experience, at a key point in their development. Shad Valley is often a key life event, allowing them to break out of a "gifted shell" (2) and to enjoy the company of young people with similar abilities and attitudes.

But...Is Shad Valley Reaching the "Right" Students?

Of course, we have to define the kind of students we are seeking. Although I joined the Shad Valley program three years after its inception, I have had some contact with the "original" 1981 Shads. During that year, the program was not run on a University campus. It was held at a private school (St. Andrews) in Aurora, Ontario. Instead of the nationwide recruiting process, students were identified on an informal, almost word-of-mouth basis. The financial viability of the program was far from assured. And, something that would never be tolerated now, students "came and went" to some extent during the program. My impression is that, while there were many bright people at Shad 1981, they were not necessarily identified as high achievers in the school setting. What united them was an adventurous spirit and the willingness to try something risky and different. Several were "mavericks" who came to Shad because it sounded interesting and was NOT part of the school establishment. And a number have pursued unusual career paths, such as starting their own companies instead of going to college.

Shad Valley is still outside the mainstream of the high school system in that it is run by an independent non-profit corporation and takes place on University campuses. However, over the years, many links have been made to schools, teachers, and counsellors which have tended to "institutionalize" and "legitimize" Shad Valley. For example, each student is now expected to submit a principal's recommendation and these are weighted heavily in the selection process. It is far more difficult for a gifted "outsider" to make it through the 1992 screening process than it was a decade ago.

A key concern expressed by thoughtful program staff and "Shad survivors" (the name applied to graduates of the program) is that Shad has become a sort of "ultimate merit badge," -- something that students automatically apply to in grade 11, partly from interest, but also because it is "expected of them." While this is not *prima facie* bad, it does tend to attract a different kind of student, and the Shads from the earliest programs, who feel they were taking a risk in going to Shad Valley, tend to look down on the current crop for this reason.

The Application Process

The primary tool for selection of Shad Valley student is the application form, available from the Canadian Centre for Creative Technology (see note 1) each Fall. Along with teacher and principal assessments, and any supplementary materials (such as copies of awards that students may submit, testimonial letters, etc.) the application forms go to at least four readers who are members of the nationwide program faculty. These are primarily University professors and graduate students with expertise in a scientific or business discipline, but usually no formal training in education. The applications are ranked in batches and the reader rankings combined to yield a position number for each applicant. Students below "the cut" are told that they will not be considered further. Students who fall above the cut are offered to sponsoring companies for consideration. If a student receives a sponsorship, he or she attends the program for the sponsored fee ($700 in 1992.) Students who are not sponsored but who are above the cut are offered places in the program at the unsponsored (but still subsidized) fee ($1750 in 1992.)

(In the SAGE seminar presentation, attendees were now invited to complete part of a Shad application to appreciate the process and to be able to comment intelligently on it in later discussion.)

Subtypes of Shads: 1992 edition

Shad Valley students are themselves a highly selected subgroup of Canadian young people. They almost invariably have high marks, significant extra-curricular involvement and other achievements that indicate a "creative spark." But when they arrive at Shad, it is quickly apparently that the group is far from homogenous. Based on my personal experience over nine Shad programs, I would like to venture some characterizations. These were first presented at the 1991 Shad Valley Program Directors' Meeting and met with a general sense of recognition and approval on the part of staff from other programs, so I believe they are not idiosyncratic to the Calgary program. The subtitles are just for fun, so don't take *them* too seriously!

Type A: The Balanced Achievers ("Honey, I Ran the School")

These are students with high marks, excellent activities, often athletic teams. We're starting to see "dynasties" with two and even three siblings attending Shad Valley in various years. These students would probably do well anyway, but Shad Valley gives them extra challenge and motivation.

Type B: The Unbalanced Achievers ("Can You Say Nerd Camp?")

These students tend to excel in one subject (often math or computers) and to concentrate their attention on it to an almost unhealthy degree. Shad Valley often has a tremendous influence on them, since it *forces* them to become broader. Just writing a great computer program won't satisfy the demanding requirements of Shad Valley. To achieve the goals laid out for them, students must learn to work with a team, do presentations, and even participate in things like aerobics. So these students are:

a) forced to try things outside their "pet area"
b) gently humbled because they don't do these things so well
c) put in a supportive environment where participation and trying your best is valued

The social aspects of Shad Valley often work a remarkable personality change on Type B students. They also tend to become the program's greatest boosters, since it meant so much to them.

Type C: The Terminally Quiet ("What kind of books do I like? Well, whatever my father tells me to read.")

Often female, often of Oriental background (though these stereotypes certainly don't hold universally,) these students are bright and accomplished but do not want to share their gifts too openly. In structured situations (a test, a piano competition) they shine, but in everyday activities they hold back and hardly contribute at all. In many cases, I have the feeling that they are behaving in a way which is indeed appropriate for their family and cultural expectations. However, in the freewheeling, try-almost-anything atmosphere of Shad Valley, they seem to stay on the margin. This causes great distress to some of the staff, particularly the junior ones, who feel obliged to pull them into activities. I am sure that Shad Valley was meaningful to many of these students, but it would be hard to tell from the things they say or do.

Type D: The Mistakes ("How Did They Get In?")

These are the cases where the application process clearly failed. Either they're over their heads or they have some overwhelming problem which prevents them from "getting into" the Shad experience. It's poor form to send them home (assuming they behave) but the month is mainly a social experience for them.

Type E: Attitude Problems ("I Really Don't Want to be Here.")

Very rare. I've only met three of these in nine years. Two were sent home. The other should have been. It isn't fair to the rest of the group to devote extra resources to such a person if they honestly want to be somewhere else.

Type F: The Surprise Packages (!!!!)

Notwithstanding all the above, there are always a few Shads who really surprise us either by achieving way above what we expected from the application, or by looking good "on paper" but being disappointing in reality.

A Modest Proposal for Improving the Selection Process

To increase the flow of excellent students I have proposed that we institute some sort of "Major Hurdle" to getting into Shad Valley. The lengthy application form used to be one, but now, in many schools, there are teachers and counsellors who will help with the paperwork. We have even seen applications typed by the school secretary! Also, there are undoubtedly files of old applications (certainly for Shad siblings!) In any case, I would like to see a challenge that changes every year, and involves presentation skills. Ideally, of course, we'd love to interview the students, but the logistics seem to prevent that. So, here's the next best thing:

We concoct an annual set of problems or questions that the students will find challenging, stimulating, interesting, and difficulty to answer in a few sentences. Then we ask them to *present* their answers on a brief audiotape to be submitted with their application. For example:

IN TWO MINUTES OF TAPE, TELL US YOUR BEST ANSWER TO EACH QUESTION:

Why are black holes "black"?

Saying they suck up light is a poor answer. Discussing photons is a little better. Using concepts like "event horizon" correctly will earn higher marks.

2. Can a computer think?

Again, we're looking for depth and concepts like the Turing Test and Neural Networks. We mark them down for simplistic arguments.

We need to avoid questions like "How can a curve's fractal dimension exceed 1" which are interesting but can be answered by copying an answer from a library book. Side benefits of this process would include the ability to assess how hard the student will work (weeks out types D and F) and learn something about their social/communication skills (to detect Type Cs and at least make sure we don't fill the program with them!)

I have proposed that this selection procedure be used on a trial basis for the selection of Shad students. I believe it will restore some of the "core values" of the program.

Notes

(1) Canadian Centre for Creative Technology, 8 Young Street East, Waterloo, ON N2J 2L3 (519) 884-8844

(2) Keenan, T.P., "How Shad Valley Cracks the 'Gifted Shell'," SAGE Conference, Calgary, 1990

The Structure of Intellect Model (SOI): Overview and Resources

Jim Lavers

Education Programs

Education Programs

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SOI *SYSTEMS*
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or (403) 435-1106

I. HISTORY OF DEVELOPMENT.

J. GUILFORD - Multiple Factor Approach (p.10 -Sattler). Criticized because it measures dispersion not a central/hierarchical "g" factor.

- Not a totally empirically derived test such as Stanford Binet/WAIS which (1) measure what is found(by the test) rather than discreet capacities.

- Built upon a combination of empiricism, enormous amounts of testing and a grid structure (p.51 - Wechsler).

- Largely ignored because:

1. " g" factor lies in Mary Meeker's gifted/ creative factor designations.
2. other tests may be easier to give and may have appeared earlier,

- Howard Gardner; Frames Of Mind(p.8) supports/ has evidence of "several relatively autonomous human intellectual competencies"

SUMMARY: "The test of any organizing principle is its success in rendering specifics, not its status as abstract reality".P.15,Time's Arrow,Time'sCyle. S.J.Gould.

(1) see summary-relative to revamping education -bottom, page 94

II. THE MODEL AND HOW IT WORKS. (reference - P.20/21 An Interpretation Guide -attached).

Guilford recognized that not only were intellectual capacities discreet but that they reflected differing

OPERATIONS: Cognition, Memory, Evaluation, coNvergent, Divergent, (Behaviour).

Also the CONTENTS of these operations differed in that Figural, Symbolic and seMantic learning were using different aspects of the brain, ie: Right, Integrative and Left.

As well the levels of competence, the PRODUCT could be assessed as six capacities moving from Units, through Classes; Relationships, Systems, Transformations and Implications. (reference P.7 Chart-SOI Manual-attached).

He, and the Meekers also recognized another kind of "intelligence" (response to environment) in BEHAVIOURAL. ie: "nonverbal information involved in human interactions.(about 93% of actual response according to N.L.P.findings-Lavers'insertion) Behavioural content includes the awareness of thoughts, desires, feelings, moods,emotions, intentions, and actions of other persons and oneself, understood without verbal clues. It includes body language and affective aspects of cognitive skill........ Meeker suggests that factoring behavioural variables may be difficult because manifestations of behavioural content are closely related to figural content.(Kinesthetic mode learners are much more aware of this "content" and resent - in fact internalize verbal content that is denegrating-Lavers' insertion)...Behaviour may be a sixth operation rather than content. (page 6 -SOI-LA Manual)

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(1) Basic problems related to advancing education today:

1. Little recognition of discreet individual differences - clearly identified/remediated through SOI modules related training.
2. Insistence on achievement benchmarks which do not take into account the above; thus leading to frustration, loss of self esteem and drop outs.
3. Measurement in, primarily, digital areas with teaching methodology canted toward seMantic learning(blend of logical/linguistic abilities-(Gardner - P.X).
4. Life Skills/success areas ie: Evaluation/Divergent Thinking(Affective Domain)largely ignored- hence the low relationship between school and life success (if we count ALL the entrants not just those who pass the highest barriers).

III. GIFTEDNESS (AND CREATIVITY).

Giftedness, generally, considered as Academic Giftedness. (Area 1 Cognitive/Academic - chart P.16, Interpretation Guide - attached).

Also, Giftedness tends to presume no major disabilities.

Creativity may include "disabled" persons or those judged dyslexic. However Area 1 "Gifted" may seem dyslexic in Area 3 (Physio-Neurological) and, possibly in Area 2 (Social/Emotional).

Area 1 - Academic Giftedness and Creativity (the capacity to put into print the Physio-Neurological capacities of Area 3 and/or the Social Skills of Area 2).

Area 2 - Affective Functioning - the capacity to detect needs of others and the relationship in helpful ways of self to others. Leadership.

Area 3 - Physiological and Neurological functioning. Talent.
When combined with Area 1 extremely gifted(the musician or actor who can write a play, broadway production or opera).
When combined with Area 2 extremely gifted in terms of setting a model for humane behaviour (today Gretzky is the best example). All Area 3 have the potential("giftedness") to succeed in Area 2/Area 1 but this depends on nurture as much or more than nature.

Except for the Area 2 gifted the gifted and creative may feel an extreme sense of loneliness or frustration.

.... their motivation is easily diminished or extinguished when they are locked into an environment at home or school ..... that is not supportive" (page 17 An interpretation guide).

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STEPHEN J.GOULD; TIME'S ARROW, TIME'S CYLE. 0-674-89199-6

SATTLER; ASSESSMENT OF CHILDREN'S INTELLIGENCE 0-7216-7943-9

MATARAZZO; WECHSLER'S MEASUREMENT AND APPRAISAL OF ADULT INTELLIGENCE SBN:683-05595-4

— "Process for Productivity" —

INTELLECTUAL RELATIONSHIPS OF ABILITIES TO OTHER AREAS

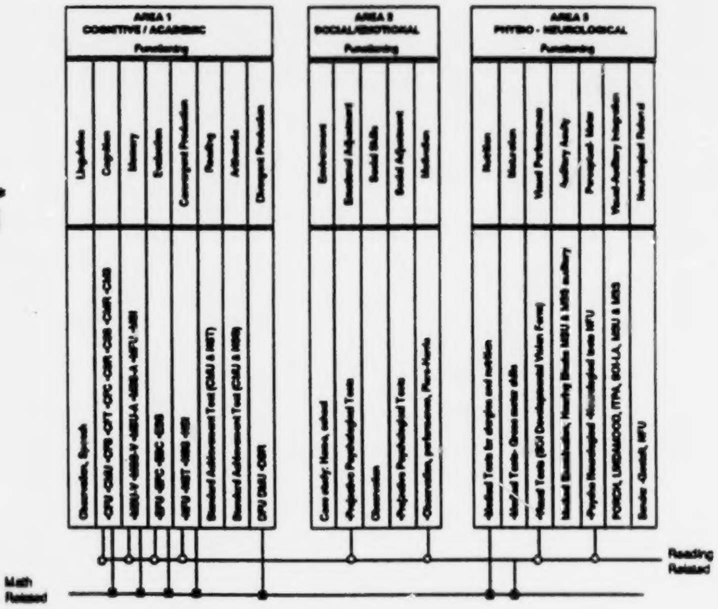
Any score that is below grade level signals potential problems in learning; a score lower than the expected on one of the enabling factors will make learning difficult (at best), and when learning becomes uncomfortable, students who are not highly motivated often stop trying. The earlier the diagnosis, then, the more likely such problems will be avoided. Well motivated students will continue hacking away but much energy is spent compensating. Use a target specific approach with both groups. (see page 24)

The paradigm below puts the SOI-LA test assessments in the broader context of total human functioning. The paradigm presents three different areas:

Each column can be assessed.

Three Major AREAS for Assessing Functioning

MEEKER PARADIGM*



Curriculum can be matched to findings within each of the columns above.

- **Area 1**— Encompasses language, structure of intellect learning abilities, and academic performance. Scholarship and creativity show up here with high functioning.
- **Area 2**— Encompasses social and emotional functioning; sometimes called affective functioning by educators. Leadership shows up here.
- **Area 3**— Encompasses physiological and neurological functioning. Talent shows up here.

The academically gifted are, of course, performing at a gifted level in **Area 1**. Typically they are excellent convergent producers whose gifted memory abilities bring them to the attention of their teachers. Individual Educational Plans (IEP's) can be made for all students in each one of the **Area 1** columns using the SOI Sourcebooks, Task Cards, and standard curriculum.

*From: State of The Art, Office of Education, 1975

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GIFTEDNESS

We tend to equate giftedness, with academic giftedness but there are gifts and talents in the other two areas as well. **Area 2** giftedness can be assessed as well as can **Area 1**. An **Area 2** giftedness is usually reflected in school leadership, social leadership and interpersonal relations. Many **Area 1** gifted need support and guidance in **Area 2**. **Area 3** giftedness is demonstrated in talent for the arts, music, sports and drama.

In some ways **Area 3** is the most neglected and yet any serious problem here may affect performance in **Areas 1 and 2** *. The best kind of education we can provide today would begin with excellent diagnosis in **Area 3**. The earlier the diagnosis here, the better the chances for avoiding special education placement and long-term failure in average classrooms for students who enter school with **Area 3** deficiencies. *Many Area 1 potentially gifted are severely hampered by Area 3 problems which often go undetected. They are Labled as 'Learning Disabled Gifted'.* **Area 3** giftedness is best described as talent and is shown in athletic, musical, dancing, artistic, and skill-craft talent. In other words, the **Area 3** talents depend upon motor functioning which is at a gifted level—how the artist sees, how the musician hears, how the athlete coordinates body with eyes and ears. For example, the talented vocalist shows **Area 3** giftedness. If the vocalist also creates the music, then that is demonstration of **Area 1** Divergent Symbolic giftedness; and SeMantic Divergent Production is displayed if the vocalist also writes the lyrics. The actor is gifted in Convergent Production and Memory in **Area 1**, as well as in **Area 3** where body movements communicate to the audience exactly what is expected to be interpreted from the action. The quarterback* on a football team has **Area 3** giftedness, but his decisions, and changes in plays on the spot, demonstrate **Area 1** (Figural and Evaluation) giftedness. **Area 3** giftedness is the motor skill underlying the Cognitive overlay. In other words, giftedness, talent, leadership are human functioning of extremely outstanding performances in any one or more of the three areas. At the same time, any gifted person can be non-gifted in any of the other functions in the paradigm.

Our search for giftedness will be more humane with the understanding that giftedness is **differential** and may, for any individual, be confined to one area of special aptitude— that the person will not be gifted in all areas. This is especially meaningful of the gifted whose greatest needs are in **Area 2**, the social-emotional area. Since the gifted have a tendency toward acute sensitivity, feelings of being different and loneliness (except for the **Area 2** gifted), their motivation is easily diminished or extinguished when they are locked into an environment at home or school and that environment is neither supportive nor accepting. Equally damaging to the gifted are parents and teachers whose expectations approach perfection during childhood. And just as damaging is the forced competitiveness for "A's" in all subjects. Occasionally this perfectionism does stem from the student, and in these cases, support and teaching tolerance for failure, become most imperative. Many of our potential gifted students fail to perform in **Area 1** when their **Area 2** needs are not met.

The paradigm reminds us that human functioning is multi-faceted and while we may emphasize one aspect or another in nurturing develoment, we should not lose sight of the total human profile. The diagnosis of SOI abilities as they relate to the learning of school subject matter should be made on every student entering school.

Social changes in family structures today almost guarantee that fewer children will enter school cognitively prepared for learning. The Structure of Intellect Tests offer a method for assessing developing intellectual aptitudes.

All students have intelligence. The SOI allows you to ask "what kind", not only "how much".

---

* This explains the frequent association of giftedness with dyslexia.

© M Meeker An Interpretation Guide

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INTERPRETATION FOR SOI TESTS OF CREATIVITY

Mary Meeker, Ed. D.

USING THE KNOWN FOR INVENTING THE NEW (Subtest DFR)

HIGH SCORE

Your ability to organize and make new connections with and between unrelated information is very high. This is a rare gift. You should be in a job situation where you have the freedom to survey the known and make your deductions accordingly, particularly where you manipulate concrete ideas such as developing logos and designs. If this is news to you, then take some courses in graphics design or lettering to give you professional skills in the spatial aspects of figures and shapes.

MEDIUM SCORE

Your ability to be inventive using figures and spatial boundaries falls within the average range. You may want to further develop this skill, particularly if it is required in your work and you sense that you could be better. Take some courses in creative design and begin to read about creativity and what the characteristics of creative people are. There are modular SOI booklets to help you develop your ability to a higher degree. Even if you have artistic or graphics talents, you can improve your inventive ideas to make them match or be more commensurate with your talent.

LOW SCORE

Your score was low for using spatial information as a basis for creative ideas. This can be due to your taking a great deal of time in drawing your figures or in going into great detail at the expense of being fluent. For whatever reason that your score was low, your responses can be improved if you begin concentrating on having new ideas and looking at situations in new ways. To become more inventive, try some of the Creativity booklets SOI produces and begin reading on your own about what it is to be creative. You can improve!

BREAKING BOUNDARIES (Subtest DFT)

HIGH SCORE

✓ You are one of those creative people who can manipulate things and shapes and spatial ideas in your head without the hands-on experience most of us require. This means you simply do not see life the way others do-- talent which, if it does not get you into social trouble at school or work because you do see things differently, will, if you protect and nurture this gift, lead you into success into future jobs, predicted but not yet known. To increase the technological foundation for this talent, find time to take every kind of art course you can: woodworking, carving, sculpting, automotive design, aeronautics design, pottery, drafting, etc.

MEDIUM SCORE

Your score falls within the average range. Should you want to be more spontaneous, be able to look at things or organize information in different ways, you could easily improve this ability to a higher level. If you tend to be perfectionistic and find that it sometimes causes you problems, then improving transformation thinking will help you give up some of the aspects of perfectionism that are troublesome, and retain those that make life better for you.

LOW SCORE

You are more comfortable with things the way they are and that's alright--not every one can or should be a boundary breaker—it is a hard life for the person who is one. If you do want to develop more skill in techniques for arts and design, then there are SOI booklets available to help you start: DFU, DMU., DMS, DMT, etc.

FINDING NEW WAYS TO COMMUNICATE. (Subtest DSU)

HIGH SCORE

Your high score indicates you may be quite an unusual person who has unusual ways of looking at things. You can, and should, continue to nurture your new ideas. With this high score you would be good at trouble shooting and finding new ways to do things, new solutions to old problems. Yours is a rare gift for using symbolic, abstract information. If you are not now in a school situation or a job where your skill and talent is not being used to advantage, or if you are not already making improvements in things around you, you will feel more fulfilled if you get yourself into a situation where your talents can be used to advantage.

MEDIUM SCORE

Although your ability to come up with and communicate new ideas is at an average level, you may want to find new and different ways of looking at problems or at communicating. You can do this by working on specific training materials that will help you. Having new ideas is exciting for you and for the people you are around—it makes life a little spicier. An average score indicates that you would not find it difficult to improve even more.

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JUDGING ABSTRACT IMPLICATIONS.

The ability to hold many ideas in mind while you organize and add to or remove aspects of a concept—this is the ability assessed and sampled on this test, (ESI).

HIGH SCORE

If your score was high, you are probably a whiz in higher forms of math (or should be!). You are a planner *par excellence*. Have you found that while your friends (or family) is still trying to 'get it together' you already have figured the problem out? This ability is indicative of top management potential. You need to head for the tops, no matter what field you are in or intend to enter. If you are young, then have patience, you'll get there. If you are already in the work force, and have not realized your ambition, survey the field and see what your chances are realistically, then move on it.

LOW SCORE

If your score was low, do you have trouble keeping several things in mind at once and making decisions about them? Is this because you go too fast and are impatient or because you go too slowly? If you haven't had much opportunity to do long range planning, then start insisting that you be given that privilege—it is the best way to learn. Studying the booklet, NSI, will give you a good start.

ANALYTIC REASONING.

We tested you for this ability using a test form that is very unique, however, the ability is one that is most commonly thought of as a *general reasoning* function. It samples how well you can do commutation and form reasoning with simple arithmetic procedures.

HIGH SCORE (EFI)

If your score was high, you not only have a natural talent for math, science, engineering and architecture basics, but for philosophy and research as well. It would be nice if you enjoyed one of these fields since mastering the basics would come easily to you. You probably enjoy working with details long after most people 'throw up their hands and leave the field.' If you don't have a computer yet, do get started with programming lessons where ever you can.

LOW SCORE

If your score was low in analytic reasoning, you can get by in school in non-advanced classes of math, but you will probably stick with arithmetic until you can leave it all behind you. You're entitled!

✓ ANALYZING FOR DETAILS. (ESU)

This test is one of the most popularly disliked of SOI tests—it requires tedious and painstaking analytical decision making. However, some people (a few) love it, adore it and can't get enough opportunities to analyze details either at school or at work.

HIGH SCORE

If your score was high on this test, the world needs you—the airports most of all because you would make a spectacular air controller or spy or detective or general puzzle solver and efficiency expert. So go to it—you won't have much competition once you make your mark.

LOW SCORE

If your score was low on analyzing details, take heart, you are in the majority, but there are many times when life runs better if you stop and take note of the details, so develop a little patience for the tedium of living. We can help you with a booklet devoted to helping you sequence verbal information called CMS which leads you to develop some more advanced abilities (NSR and ESU), if you are interested!

SOI SYSTEMS,

JAMES F LAVERS, M. ED.
EDUCATION PROGRAMS
11507-44 'A' AVE
EDMONTON AB CAN T6J 1A2

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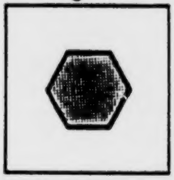
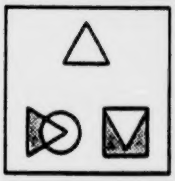
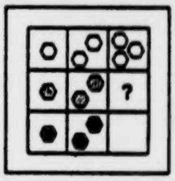
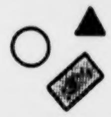
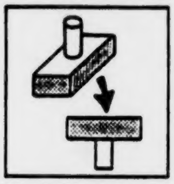
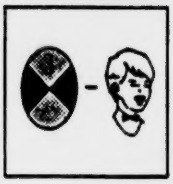
		CONTENT	
PRODUCT	**Figural**	**Symbolic**	**Semantic**
Units		1	BOOK
Classes		LIGHT | 10 KNIGHT | 35 MIGHT | 5 (two examples)	ROSE | RUN VIOLET | JUMP TULIP | HOP (two examples)
Relations		3 – 8 5 – 10 1 – 6 7 – ?	PEN – INK as BRUSH – PAINT
Systems	 (object orientation)	4 7 10 13 ?	The boy went to the store to buy some bread. (comprehension)
Transformations		TIRE TIER	Use a wine cork for a pincushion.
Implications		4 +3 ? 91>K 120–G	SMITH–DOCTOR CORD–TEACHER

Note. From M. Meeker (1974).

Figure 3
Examples of Six Types of Products
in the Structure of Intellect Model

RE: NORMS for S.O.I.

Education Programs

Jim Lavers M.Ed
Associate, Alberta,
Saskatchewan:

SOI SYSTEMS CANADA INC.

Testing and Training Intellectual Abilities for Career and Educational Applications

11807 - 44A Avenue,
Edmonton, Alberta,
Canada T6J 1A2

Tel. (403) 436-6694
or (403) 436-1106

September 3, 1992.

Ms. Schmidt:

I have an answer to the question about grade norms for the SOI.

National Norms were used by the SOI research staff at El Secundo, California

Also, Child Development work done at the psychology department of U.S.C. as to appropriateness in developmental terms was used to support the norming process.

In other words there was no reliance on regional or site specific/ethnic specific results for the norming process. Also, research on child development stages was used as a support/cross check mechanism.

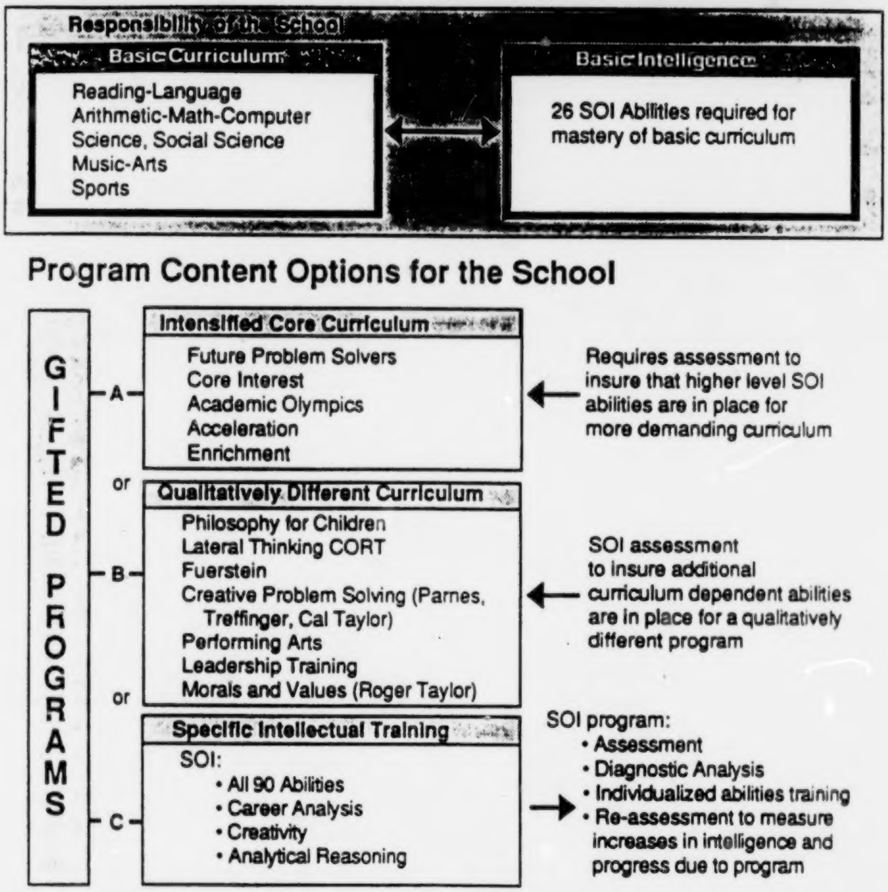
Regards
JLavers
Jim Lavers.

I have attached some basic SOI reference sheets, but,
I believe Lloyds has a complete "file".
Look forward to presenting to your group this fall.
Only dates not available coincide with S.A.G.E.(end of Sept.), [illegible],Guidance(end of first week in November) and I.O.P.(end of last full week of November).

Professional Development Programs mailing is also enclosed for review. Please forward to Human Resources Planning Consortium.

Thank you for your attention to all of the above at this busy time of the year.
J.L.

How to Design Gifted Programs



Responsibility of the School

Basic Curriculum

Reading-Language
Arithmetic-Math-Computer
Science, Social Science
Music-Arts
Sports

Basic Intelligence

26 SOI Abilities required for mastery of basic curriculum

Program Content Options for the School

GIFTED PROGRAMS

A — **Intensified Core Curriculum**

- Future Problem Solvers
- Core Interest
- Academic Olympics
- Acceleration
- Enrichment

Requires assessment to insure that higher level SOI abilities are in place for more demanding curriculum

or

B — **Qualitatively Different Curriculum**

- Philosophy for Children
- Lateral Thinking CORT
- Fuerstein
- Creative Problem Solving (Parnes, Treffinger, Cal Taylor)
- Performing Arts
- Leadership Training
- Morals and Values (Roger Taylor)

SOI assessment to insure additional curriculum dependent abilities are in place for a qualitatively different program

or

C — **Specific Intellectual Training**

SOI:
- All 90 Abilities
- Career Analysis
- Creativity
- Analytical Reasoning

SOI program:
- Assessment
- Diagnostic Analysis
- Individualized abilities training
- Re-assessment to measure increases in intelligence and progress due to program

Select from Below for Organization

Administration	**Organization**			
Triad Autonomous Learner Integrated Learner Other	Group	Pull-out	Cluster	Individualized

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BEST COPY AVAILABLE

A Child's Intelligence...

...is not a number.

...is complex, but not so complex that you need a graduate degree in psychology to understand it.

...can be improved — intelligence can be trained.

...is affected by his or her physical health and/or social-emotional health.

Did You Know...

A child — whether gifted or learning disabled or both — has a profile of intelligence with different areas of strengths and weaknesses.

A child has a preference for learning in terms of intellectual content (as everyone does)— and is predominantly figural, symbolic or semantic — though it is possible that he or she is equally good in all three.

A child's preference for one or another type of intellectual content will affect academic performance and interest.

If a child is a symbolic learner, he or she will not do as well with a "see and say" or basal reader approach to reading.

If a child is a semantic learner, he or she will not do as well with a phonics approach to reading.

If a child is a figural learner and has not learned to read the problem may be simple. That had he or she been born in Japan (which uses a figural reading system), he or she might be a reader.

Any figural learner is in an academic system that discounts figural intelligence; that once this is understood there are ways to improve academic prognosis.

There are three principal components in reading for comprehension. Lack of comprehension may be due to the lack of one or more of the three.

A child's profile of intelligence can be assessed.

A child's profile of intelligence can be improved with SOI lessons.

A learning disability is the lack of one or more learning abilities. With this definition it is possible for a child to be both learning disabled and gifted.

The key to a child's success — in school and beyond — is understanding and nurturing of his or her intelligence.

The key to understanding a child's intelligence is not how much, but rather what kind.

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Coming Together at G.A.T.E.

Lily Lee / Janneke Ruysenaars / G.A.T.E. Panel
Calgary Board of Education

Introduction

Our presentation format included the viewing of a 26 minute video as well as a discussion period with a panel comprising G.A.T.E. students, teachers, parents, and administrator. The video, "Coming Together at G.A.T.E.", is a synthesis of salient information provided through extensive interviews with several stakeholders of the program. The video depicts not only what the program represents, but also why it is a necessary alternative for Calgary Board of Education gifted and talented youngsters.

The G.A.T.E. Program

The G.A.T.E. (Gifted and Talented Education) program was established by the Calgary Board of Education at Queen Elizabeth Jr./Sr. High School in September, 1987. The program is available to qualified students from Grades 4 to 9. Program enrollments include 105 elementary students and 150 junior high students. The pupil/teacher ratio is the same as in regular programs.

Grades 4 to 6 students work in a multi-age grouping with a team of four core subject teachers. As well, these students receive instruction from subject specialists in Physical Education, Art, Dance, Visual Communication, Home Economics, Health, and Computers.

Students eligible for the G.A.T.E. program who experience significant learning difficulties may be referred to the G.A.T.E. Resource Room. The resource room serves a maximum of 10 junior high students at any given time.

G.A.T.E. students at all grade levels have the opportunity to establish mentorships in areas of talent and interest.

How are Children Selected for the G.A.T.E. Program?

Students are referred to this program by their home schools. Placement decisions are made by a system admissions committee.

Criteria for placement in the program include:
- Very superior scores on an individual psychological assessment
- Very superior achievement scores on standardized tests in Reading and Mathematics
- Nomination forms, available at individual schools, are completed by both school and parent in support of the G.A.T.E. placement

Students who most benefit from this program should demonstrate the following characteristics: evidence of strong task commitment, resourcefulness, ability to think and work independently, ability to take risks in thinking and in action, a high level of curiosity, and the demonstration of appropriate behaviour in a variety of settings.

The Way We Teach

Gifted and talented students have an exceptional need not only to absorb knowledge and satisfy their curiosity about the world - as do most children - but to actively participate in the formulation and examination of ideas in order to stretch and test their unique talents. Consequently, in this program particular attention is given to building a strong academic framework from which a child can approach future learning and establish a habit of creative freedom.

High priority is given to the acquisition of basic skills - reading, speaking, writing, and mathematics - tools that enable one to articulate original ideas, structure unusual insights, and focus fertile imaginations.

Great emphasis is placed on teaching children to utilize the skills of analysis, synthesis, and evaluation for making logical and creative use of knowledge. Students are encouraged to explore areas of particular interest or strength.

Careful attention is given to maintaining a balance between academic and social values. Students are encouraged to participate in activities that promote personal and interpersonal growth. The classroom is viewed as a safe environment - one in which we trust, risk-taking, and self-efficacy is promoted. Teachers facilitate a warm, friendly, and supportive atmosphere wherein able learners develop positive self-esteem and personal satisfaction.

G.A.T.E. students at Queen Elizabeth benefit from the opportunity to learn and communicate in a congregated setting, and to interact with the whole school community.

Concluding Remarks

Extensive meta-analyses indicates that while full-time ability grouping for regular instruction makes no discernible difference in the academic achievement of average and low ability students, it does produce substantial academic gains for gifted students enrolled full-time in special programs for the gifted and talented (Rogers, 1991).

A core difficulty in thinking clearly about meeting the educational needs of gifted youngsters is that providing such special opportunities runs counter to the idea of a democratic or egalitarian society. There is need for more critical thought about what is meant by "democracy in education" and the perceived incompatibility between equality and individual differences. In fact, if the matter is cast as "equality of opportunity," the incompatibility disappears (Colangelo, 1990).

To meet the special needs of gifted and talented youngsters in a school setting is a challenge, indeed. The G.A.T.E. program strives to "ensure student development through effective education." Students feel secure in the freedom of the G.A.T.E. environment to develop their roots and wings.

Amelinda Berube, a grade six G.A.T.E. student, captures the program's spirit in her poem, "Freedom":

Freedom

Clear blue immensity opens up before me.
There is light on my face.
I hear the wind whistling by.
I feel power. I feel freedom.
My world is tiny below me.
The bars of my cage melted away.
I feel power. I feel freedom.
I sail along into the heavens, into the sky, into the sun.
And at last, I feel power, I feel freedom.

It is this freedom within the congregated setting that provides the foundation for the G.A.T.E. program. It is the "Coming Together at G.A.T.E." that allows the magic to occur.

As Sternberg and Davidson (1986) state, "Giftedness is arguably the most precious natural resource a civilization can have." Children who produce and create well beyond our expectations invigorate us and show us the possibilities of human potential.

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Coping Strategies of Successful Canadian Women

Janice Leroux
University of Ottawa

Abstract

Lengthy questionnaires were completed by 27 successful Canadian women. Findings pointed to satisfaction in carrying out research, publishing, artistic and engineering production, while at the same time maintaining a healthy feeling of equality in a career path. Patterns of career growth indicated inconsistent vertical development in a number of cases, the importance of mentors in the work place, pressures to conform to stereotypical female roles, and particularly, if married, in carrying out household responsibilities. Respondents reported "being a female" was important as was work recognition and contributing to the welfare of others.

Introduction

Most research concerning the achievement of females compares females to their male counterparts, thereby measuring female performance with a male yardstick. More research is needed which examines females as a group, dealing with realities of the female experience through educational processes and into the work place. Kerr (1985) documents this in examining the lives of a class of gifted females, her classmates, fifteen years after graduation. Even recognition of giftedness at an early age, and the provision of specialized programs, did not seem to consistently produce women of great accomplishment in this cohort.

Studies focusing on gifted, talented females as well as earlier studies of successful career women, suggest that there are several key factors which impact on the achievement patterns of females. Factors such as self-esteem, career paths, mentor relationships, and cultural expectations for women, all have a profound effect on accomplishments.

Keown and Keown (1985) reported that successful women in their study made a conscious decision to make "being a female" an asset and to deny limitations based on gender. Steinem (1992) agreed that the road to success for women begins with an internal journey to feelings of equality, and the need "to demystify the forces that have told us what we **should be** before we can value what we **are**" (p. 109).

The female **perception of success** was seen as a factor in its attainment. Many studies agreed that salary, while being a necessary component, was not a prime motivator for the success of women (Froggatt & Hunter, 1980; Keown & Keown, 1985). In keeping with the tendency for females to link self-worth with a caring attitude, success was also associated with contributing to others and to an "adept ability to interface career and domestic roles" (Froggatt & Hunter, 1985). Whereas males typically viewed success in terms of the work environment alone, women tended to include all aspects of their lives in their assessment of personal success.

Certain **personal characteristics** were evident in a great number of the women who achieve vocational prominence. Researchers mentioned intensity, the ability to "fall in love with an idea" (Kerr, 1985, p. 69), to have an "intense love affair with their work" (Froggatt & Hunter, 1980, p. 180), or to follow "a powerful Dream" (Daniels, 1985, p. 429). Northcutt (1991) described the successful women in her study as being consistently responsible, competent, and committed to their careers. Flexibility was also cited as being an important quality in career women, allowing them to use situations to their advantage and to manage the dual-career aspect of their daily lives. Combine these factors with an ability to interact well with others, and one has a powerful recipe for success (Keown & Keown, 1985).

Analysis of Study

In a recent study by the author, twenty-seven successful Canadian women completed a questionnaire designed to reveal coping strategies, environmental factors, and personal characteristics that contribute to high levels of achievement in a variety of prestigious and financially rewarding careers. Questions were both computer-rated and open-ended. Frequency distributions were used to determine percentages for computer-scored items. Procedures of qualitative analysis were used for the open-ended items, including examination of themes, the constant comparative analysis of themes in depth, and the search for nonconforming cases. Responses to questions in the study provide insights into the various factors of success for women.

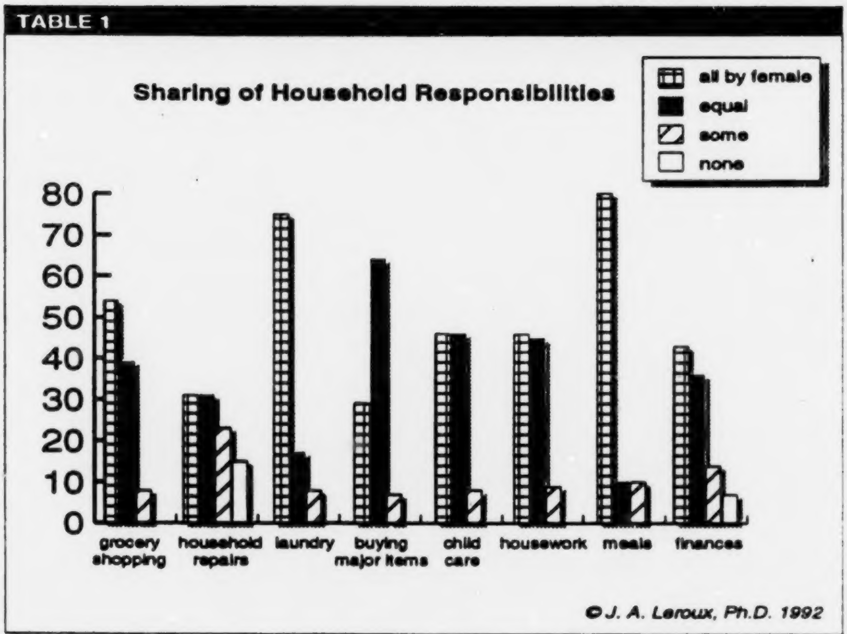
The successful women looked back on family life and almost unanimously agreed that both parents had contributed positive values to their development. "My mother was influential as an independently minded individual who developed and maintained her own career. I grew up knowing that women could do anything" reported one woman. "My father emphasized upward mobility, the importance of striving for excellence and rugged individualism," said another.

However, a different perception was voiced by several successful women; the mother's lack of career being influential. These women were determined "not to end up like her". As one woman said, "I inherited her stymied ambitions". Daugthers of working mothers appeared to feel empowered by mothers who were self-sufficient and who valued education for themselves and their children. When mothers were at home, there was sometimes an inverse relationship to the role modelling.

The respondents identified mentor-type relationships, particularly from supportive husbands and individual men in the work place who helped them forge new paths in their careers. As one said, "I had mentors - early training in business from very tough, demanding superiors." Another agreed: "A series of senior members of the Canadian research community worked with me and supported my development." As previous studies have shown, the need for committed individuals who take a sincere and strenghtening interest in the aspirations of gifted females was clearly portrayed in the responses of the experienced women.

Several of the women stressed the importance of hiring outside help to do the housekeeping and child care. This was described as "the only reasonable solution no matter what the cost!" The hiring of housekeepers leaves one to wonder how much husbands actually shared in household responsibilities. In the breakdown of responsibilities it was evident that traditional duties such as meal preparation, laundry, and grocery shopping, were primarily women's domain, leaving the question open on how much traditional roles have really changed. (See Table 1.)

TABLE 1

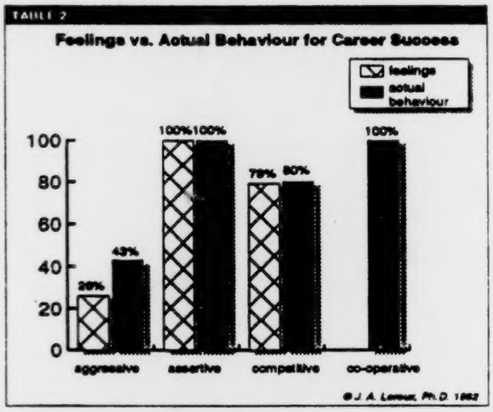


Sharing of Household Responsibilities

©J. A. Leroux, Ph.D. 1992

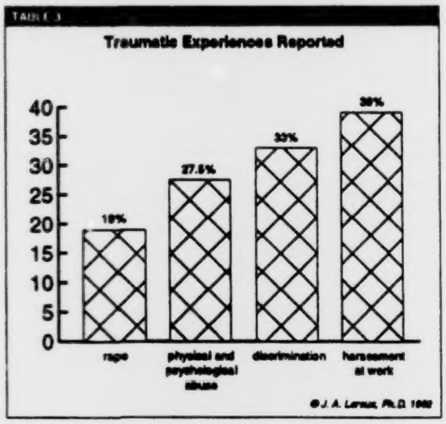
An on-going sense of striving was evident in the successful women. While 100 per cent described themselves as successful, over half of them attributed success, in varying degrees, to good luck. They went on to say that this luck was accompanied by effort and the ability to recognize opportunity. "Fate and fortune played a significant part of my achievements. I was in the right place at the right time and always said I was born clutching golden horseshoes" commented one woman. "Being open to what fate offers is important," added another.

At the same time, over half of the experienced women thought a woman must be "twice as good as a man in the same position" in order to succeed in her career. Assertiveness was listed as an important quality for success, as was cooperation. (See Table 2.)



In searching for self and success, these young women appeared to feel that self had been the neglected factor. "Having put so much energy into a career I've neglected my emotional needs and find myself living a very unbalanced life" said one successful woman.

A variety of life stressors were reported. Relocation to another part of the country (74%), or to another country entirely (52%), and coping with the death of a close friend (59%), and caring for family members in time of illness (80%) were some of the events described. In the work place, 39% had been victims of sexual harassment, 33% reported some form of discrimination, 64% indicated that male colleagues tended to feel threatened when they were with a woman who was more successful in the career than they were. In addition, 19% had been raped at some point in their lives, 11.5% had been physically abused, and another 15% reported psychological abuse. (See Table 3).



This group, however, did not feel defenceless in the face of stressful situations. They appeared to tap into an inner strength, and transform adversity into life affirmation. Their personal intelligence and determination combined with a powerful connectedness with friends enables them to face each crisis and continue to achieve.

Many of the women acknowledged the importance of self- knowledge, talking through anxieties with trusted friends, and using difficult experiences as springboards for growth. There was a consistent, strong pattern in the perceptions of the importance of relationships.

Implications and Conclusions

Several important issues were in this preliminary study, and may be summarized as follows:

1) Results suggest that mothers' expectations for their daughters are a significant factor for success, regardless of the employment status of the mother; fathers were perceived as role models of vocational success for female children.
2) Although the majority of the females in the study chose a career outside of the home early in life, most did not expect to achieve the levels of success which they later attained. For this group of women, patterns of career growth, less consistently vertical responses to career development, and home responsibilities all seemed to result in a legacy of drift. Careers happened to them rather than always being controlled by them.
3) Introduction of appropriate, gender-sensitive vocational counseling was clearly identified as a means of expanding the career choices of women today. Opportunities to explore the concerns of career and family options were strongly endorsed by this group of women.
4) The successful women in this study most often found mentors in employers or other superiors in the work environment. Friends, family, and teachers also played significant supportive roles in the career paths of these highly achieving women.
5) Although the women almost all saw themselves as successful, over half felt that luck had played a major role in their success.
6) Success for these women was most often defined in terms of contributing to the welfare of others or to the community at large. The opportunity to work in their chosen field, to gain recognition from this work, and to contribute to the welfare of others or community was also very significant.
7) Pressures for women to maintain a stereotypical role still exist; often male discomfort creates responses and then takes the form of harassment.
8) Many successful women decide not to have children; those who do usually hire full-time help. It is questionable as to how much husbands actually share child care and household responsibilities, even though the marriage is described as a partnership.

How does being highly able or gifted affect this group of women? On the positive side it appeared that they knew themselves and their personal values intensively. In other words, they had a strong sense of their own abilities, and knew how to tap into that internal strength when necessary. As a whole they appeared to have a "survivor instinct" which carried them through various trials, traumas and life stresses. They appeared to rely on this instinct from early ages onward.

These individuals were united in their drive to make a contribution, to benefit others through research, to produce something of value to others. They worked hard to be "gifted givers", those who returned to families or their communities many of the gifts they themselves enjoyed. In their concern for others, they refused to blame men in general for obstacles in their career paths. In so doing they did not see themselves in competition with others, but rather partners in making their society a little better place to live.

On the negative side, the respondents recognized the stereotypes of female roles or behaviours that they had to overcome. They reported they worked hard and planned carefully to combine their professional and personal lives. Family commitments were accepted as necessary with few regrets for the additional burden. Though they decried the pressure to be "Superwomen", they often described themselves as "workaholics", pushing themselves to accomplishments that even they had not dreamed of or planned.

The women in this study overcame obstacles through sheer determination, a perseverance that typifies the gifted individuals in our society. When career problems became too great, many reported they were grateful they could turn to cherished friends "to talk things out". Female connectedness was a valuable asset in coping with problems.

As one woman said,

> Successful women pay a very high price for their accomplishments but we must never lose faith in ourselves.

Grateful acknowledgements to Mary Xenos-Whiston, Ph.D. for original ideas and development of the questionnaire.

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Gifted, Special and Inclusive Education: Past, Present and Future Promise

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For many school districts and divisions across Canada, the current decade is one characterized by significant change (Porter & Richler, 1991). Broad-based movements such as the *Regular Education Initiative*, *Inclusive Education*, and *RestructuringSchools* are forcing educators across the country to re-examine all aspects of educational practice from instructional delivery to school organization and structure (Sailor, 1991; Stainback & Stainback, 1992; Villa, Thousand, Stainback, & Stainback, 1992; Weiderholt, 1989). Accordingly, gifted education and the way it is delivered and conceptualized is currently being reviewed (Treffinger, 1991; Gallagher, 1991).

Historical Milestones in Gifted Education

The summary chart reveals those factors and/or individuals having a major influence on the development of identification instruments and gifted education programs over the century.

Historical Milestones in Gifted Education

YEAR	GIFTED PROGRAMS EMPHASIS	INSTRUMENT DEVELOPMENT
1869	• Galton-Hereditary Genius	Early sensory measurement of intelligence
1925-1959	• Terman Studies • Hollingsworth Studies	Stanford-Binet Intelligence Scales
1957-1962	• Post Sputnik intellectually gifted programs • National Merit Scholarships	Wechsler Scales norm-referenced achievement tests scholastic aptitute tests
1962-1972	• Broadened definition includes creativity, divergent thinking • Marland's Definition	Guilford, Meeker and Torrance Tests of Creativity Renzulli Teacher Nomination Forms
1980-1990s	• Expanded Programs • More emphasis on special populations	Renzulli, Baldwin, Treffinger, Rimm Underchievement I.D.

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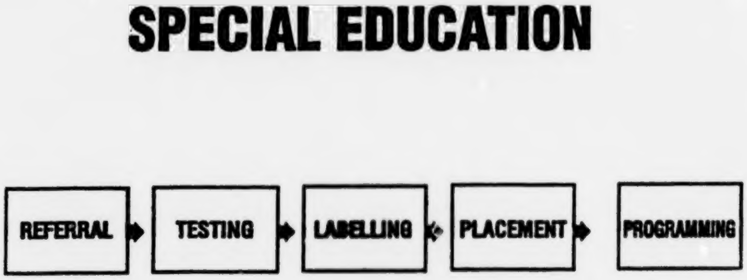
Critical changes during this time include: (1) a shift in emphasis from genetic endowment to environmental influences on the actualization of giftedness; (2) the establishment of a credible research data base; (3) societal recognition of the valuable contributions of gifted individuals; (4) an expanded definition of giftedness from a narrow focus on IQ measures to a broadened focus including creativity, leadership, academic achievement, psychomotor ability, intelligence, and visual and performing arts; (5) expansion of gifted programming to serve a greater number and diversity of students.

The Special Education Approach

Despite the fact that gifted education has maintained a relatively separate evolutionary path within the schools, the more recent decades have seen an increased alignment with special education. Indeed many school districts have adopted the traditional *Special Education Approach* as a primary method of service delivery for gifted students. As shown in Figure 1, the *Special Education Approach* is a static, one-way process consisting of five elements or boxes.



SPECIAL EDUCATION

The system becomes activated when the regular classroom teacher prepares a formal referral on an individual student which is forwarded to the principal, and in most cases, this is passed along to central administration. Central office or outside experts such as the school psychologist carry out specialized testing, and once all the relevant data has been compiled a diagnosis according to a recognized categorical affiliation such as gifted or learning disabled is determined. Experts, school personnel, and often parents then meet to consider appropriate specialized placement, and an individual education plan is developed. The special class teacher is responsible for the implementation and monitoring of the program.

The Legacy of a Special Education Approach on Gifted Education

The *Special Education Approach* has served school systems and children with exceptional learning needs well in the past, and it seems reasonable, to have adopted a similar system of procedures to serve the needs of students who are of high ability. Nevertheless, the legacy of adopting the *Special Education Approach* to gifted education has not been entirely positive. Identification: Identification practices have been found to be particularly remiss. Even though most school districts support and have adopted a multi-dimensional and/or expanded definition of giftedness, this is not reflected in identification procedures. The administration of an individual intelligence test such as the WISC-R and some measure of achievement is standard for many school divisions. Moreover, testing that is carried out may not be appropriate for the intended purpose, and having outside experts do the testing is a very costly process. Teachers have often complained that too much of the relatively limited funding for gifted education is tied up in testing that has minimal educational relevance. In comparison with other areas of exceptionality it is true that for gifted students there is a much greater focus on testing for labelling as opposed to assessment to determine individual learning needs.

Programming: A *Special Education Approach* has implications for programming as well. As it can be seen in Figure 1, an individual must first successfully make it through the first four boxes before programming concerns are dealt with. The wait factor from referral to special program could range from a period of days to months. Meanwhile what happens with the child? The approach assumes that gifted individuals must have specialized testing, teachers and programs to appropriately serve their unique learning needs. A dual system of regular and special education divides teaching responsibility, and typically once a referral is made out, responsibility for the student shifts over to special education. Decades of operation under this kind of a system has seriously disenfranchised the regular classroom teacher's role in meeting a diversity of student learning needs. The widespread practice of implementing special pull-out programs or segregated classes for gifted students has resulted in an artificial separation of regular and gifted curriculum and programs. Since funding for gifted education is more restricted than for other areas of special education, programs may not be available to the child until grade four and typically are not offered beyond grade nine. Programs are typically available to very few students, and most often it is only the intellectually or academically gifted student that gets identified and placed. Moreover, in times of economic restraint it is the unfortunate reality that gifted programs are the first to be cut.

Categorical Confusion: Services for special education have traditionally been organized according to discrete categorical designations (Presseisen, 1991). With an expanded view of giftedness emerging, schools have recently been significantly challenged to provide service for an ever increasing number of subgroups of gifted students including Disadvantaged Gifted, Bored Gifted, Suicidal Gifted, Gifted Handicapped, Language Minority Gifted, At-risk Gifted, and Underachieving Gifted. The gifted/learning disabled category is perhaps the the best known, although a recent count shows that over the past 20 years over 23 different terms have been reported. The one way *Special Education Approach* offers no alternatives beyond the provision of 23 different programs which is most unlikely, or not offering any specialized programming. Programs could conceivably be combined but what expertise should the special teacher have, and what programs should be provided?

Statistics: The long term consequences of the legacy of a *Special Education Approach* are most alarmingly noted in recent reports and statistics. The comprehensive U. S. report *A Nation at Risk* (1983), for example, indicated that over half the population of gifted students do not match their tested ability with comparable achievement in school. Other studies have confirmed this trend of underachievement or underutiliaztion of gifted potential (Nyquist, 1973; Seeley, 1985).

Gifted Education in the Future

The future of gifted education may be significantly influenced by the current school reform movements, and particularly the trend toward inclusive schooling. At the base of this movement is the principle that unlike previous special education trends such as integration, mainstreaming and normalization, inclusive education demands changes not only for special education services but for the regular system as well. What has been separately developed according to dual systems of regular and special education must be fully restructured into a unified system of education that appropriately meets the needs of all students. Expertise that was developed in special education classrooms must become interwoven with that found in general education, and instruction is geared to meet the individual learning needs of the student.

What will inclusive schools be like for gifted students? At this time it is probably too soon to tell. Nevertheless current leaders in inclusive education have attempted to delineate some of the major distinctions between traditional educational and contemporary practice (Stainback, Stainback, & Forest, 1989; Lipsky & Gartner, 1989). Instructional provisions will be student-centered with individualization provided for all students, as opposed to only the identified students. Student diversity will be celebrated by recognizing that student characteristics do not fit into simple dichotomies but rather can be configured as a continuum. Testing and assessment will be focused on determination of instructional needs as opposed to identification and labeling, and teachers will become the essential mediators of this process. Instructional strategies will be selected and implemented to accommodate student learning needs as opposed to some specified category, and a wide range of curricular options and differentiated instruction will be available, as opposed to the narrow boundaries that categorical affiliation have established. The traditional hierarchical structure and artificial barriers that currently exist between teachers and their professional colleagues will be replaced by a new system of cooperative and collaborative relationships. Finally, the artificial world of special classes will be replaced with inclusive communities where all students are welcomed and supported.

In conclusion, gifted education will be impacted by the general inclusive education initiative. Limitations and artificial barriers that have been imposed by the traditional*Special Education Approach* to service delivery would be eliminated in many dimensions of educational practice by moving toward contemporary thinking and practice in our schools.

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Gifted Education at Adolescence

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The author wishes to acknowledge the support of the Social Sciences and Humanities Research Council of Canada.

This presentation summary includes relevant portions of the background paper (Matthews, in press), in an attempt to highlight the issues addressed. For a full development of the arguments made, please see the complete paper.

Very briefly, the presentation began with a review of current research concerning optimal cognitive and affective adolescent development, including findings from diverse perspectives (cognitive science, educational psychology, gifted education, and adolescent development) that converge to demonstrate the salience of mentorships, autonomy, domain-specificity, discourse, and supportiveness at this developmental stage. Suggestions for educational environments consistent with these findings were then discussed.

Recently educators have voiced considerable concern over absenteeism, alienation, and dropout rates at adolescence (Carnegie Council, 1989; Lawton & Leithwood, 1988; Radwanski, 1987). These problems are not restricted to the stereotypically disadvantaged, and in fact have been shown to cut across all levels of academic achievement, socioeconomic status, and family status (Hargreaves, 1990; Wehlage & Rutter, 1986).

In general, and to date, most of what happens in most public high schools in North America does not reflect current findings concerning adolescent development. What we know about optimal adolescent development, and what we have been providing educationally, are inconsistent, even antithetical.

Cognitive Science Findings

Gardner (1983) argued that the conception of intelligence as a global attribute of a person was misleading, and that it made more sense to think of intelligence as a developmental profile of competences. The seven intelligences that he hypothesized were Logical-mathetical, Linguistic, Interpersonal, Intrapersonal, Visual-Spatial, Musical, and Bodily-Kinesthetic.

Subsequent findings have been increasingly supportive of this approach. For example, Matthews (1990; Keating & Matthews, in preparation), concluded that it makes better sense to think of learning somewhat separately by at least three domains (mathematics, language, and social competence) than as a process that occurs at the same rate across domains. Students in grades 6, 7 and 8 who were working at a gifted level in one of the domains were not necessarily working at gifted levels in the other two domains. It was concluded on the basis of these and other findings that gifted education at early adolescence ought to consider domain-specific learning profiles.

Educational Psychology

Discourse and Mentorships

Lev Vygotsky (1978/1930) observed that learning occurs through discourse, that close and ongoing social interaction is a necessary component of motivating and stimulating learning. Similarly, an emphasis on discourse and mentorships was an important dimension of Dewey's work, which emphasized paying attention to developing the potential of each child.

Bloom (1985) and Feldman (1986), in their studies of the development of exceptional achievement and of prodigies, both conclude that gifted level achievement is not generalized across domains, but tends to be markedly domain-specific.

Additionally, rather than early demonstrations of precocity or unusual talent, a consistent characteristic across all of the individuals who were studied by Bloom and Feldman, was an expenditure of exceptional effort, in a context of sustained, ongoing guidance from and discourse with mentors in the field of subsequent achievement.

Optimal Classroom Environments

Newmann (1990a, 1990b), in his discussions of "classroom thoughtfulness", argues that our educational goals ought to include the engagement of students in challenging problems, offering them guidance in their manipulation of information to solve such problems. He has identified the attributes of classroom environments that are most successful in accomplishing these goals. Hargreaves (1990) and Gardner (1991) have come to remarkably similar conclusions about optimal classroom environments at adolescence.

Considering research on schools' effect on development, it has been shown (Leming, 1985) that authoritarian environments tend to produce feelings of alienation and powerlessness; while environments that are democratic and open, and involve ongoing active discourse, are more likely to foster moral development and feelings of social integration.

Gifted Education

Horowitz (1987; Horowitz & O'Brien, 1986) has been a strong advocate of the need for a developmental perspective on gifted education, and, using Gardner's framework, she has noted that we must consider giftedness as a domain-specific exceptionality.

Using Vygotsky's (1978/1990) conceptualization of a student's zone of proximal development, Keating suggests (1991) that it is primarily in the context of meaningful discourse at developmentally appropriate levels that significant learning takes place.

The Richardson Study, a major longitudinal study done in Texas, concluded that gifted education was most effective in so far as it emphasizes domain-specificity, mentorships, and flexible pacing (Cox, Kelly, & Brinson, 1988).

AdolescentDevelopment

As Erikson (1968) discussed, and as has become part of the growing literature on adolescence, the importance of autonomy (often used synonymously with independence) looms large in early adolescence, and remains a major goal through early adulthood (Steinberg, 1990).

Providing a concrete illustration of adolescents' developing need for autonomy, stress and coping findings (e.g., Hauser & Bowlds, 1990; Henderson & Dweck, 1990) show that in adolescence, as in other developmental stages, the more one perceives having control, the higher is one's self-esteem and resilience.

Harter argues (1990) that interactive styles fostering the healthiest patterns of identity formation are those that give the adolescent permission to question, and to be different, within a context of support and mutuality.

Fullan (1991), in discussing educational change, noted that even teachers learn best when provided with both autonomy and support.

Maximizing students' autonomy, therefore, while providing appropriate guidance (Steinberg, 1990; Steinberg, Mounts, Lamborn, & Dornbusch, 1991), can be seen as the goals most likely to optimize adolescents' self-esteem, resilience, and healthy identity formation.

Conclusions

Running through this work in various disciplines are emphases on the salience of mentorships, autonomy, domain-specificity, discourse, and supportiveness at this developmental stage.

On the basis of these convergent findings, at adolescence we ought to offer educational environments which (1) nurture the development of mentorships, (2) facilitate students' discovery of their own (domain-specific) interests, (3) encourage a serious engagement with meaningful material, (4) emphasize discourse with peers and teachers, and (5) provide responsive, ongoing, supportive guidance.

It is imperative that support and guidance are provided along with autonomy, so that structures and deadlines are – selectively and appropriately – retained. This presents a challenging balancing act for all the participants (teachers, students, and parents) and requires an intelligent, responsive, flexibility on the part of teachers.

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O.M.—Odyssey Of The Mind
A Creative Approach to Education

Mary May / Sharon Baker
Lethbridge Public Board of Education

During this presentation Odyssey of the Mind will be described to potential coaches and administrators. It will, also, be of value to existing coaches as the basic coaches' video will be shown and emphasis will be placed on the three areas of competition; long term problem, style, and spontaneous problem.

ODYSSEY OF THE MIND AND GIFTED PROGRAMMING

Creative problem solving is considered by most educators as an essential component of gifted programming. The Odyssey of the Mind Program incorporates creative thinking with critical thinking skills, leadership and organizational skills, communication skills and forecasting and planning. Indeed O.M. may encompass all nine areas identified by the Alberta Department of Education as the crucial areas to be addressed in gifted education. Although suitable for gifted education this program is not and should not be used exclusively for the gifted. It is an excellent vehicle for learning with all students.

ODYSSEY OF THE MIND AND FUTURE EMPLOYMENT

Our students, as future problem solvers, need to be self-reliant and to know how to take initiative. The program, with the coach as a guide, teaches students responsibility for their actions and interactions, gives them confidence in solving difficult problems and helps them to learn how to work as a group toward a desired goal.

The employers of the future want people who know how to learn. Given novel situations, students in Odyssey of the Mind, struggle to seek answers, to ask good questions, and to discover expertise within the community. With the help of coaches and resource people these students find answers and work as a group toward a creative solution of the problem. Employers also want and need people who are skilled in groups, have good interpersonal skills, good communication skills and are effective leaders. O.M. fosters growth in these areas as well. Team members gradually learn how to respect each other and to encourage everyone's ideas. These skills will help them to be more effective in tomorrow's marketplace. It is our belief that Odyssey of the Mind is an outstandingly effective program to train our future leaders and to develop creative problem solving skills in our students.

THE ODYSSEY OF THE MIND ORGANIZATION

The Odyssey of the Mind Program, under the auspices of OM Association Inc., a nonprofit corporation, promotes divergent thinking in students from kindergarten through university. This program offers students a unique opportunity to participate in challenging and motivating activities both inside and outside their regular classroom curriculum. Students learn to work with others as a team. They develop self-confidence by creating solutions, evaluating their ideas and making final decisions. They develop their creative skills through problem solving and independent thinking. Hence, the Odyssey of the Mind program makes learning fun.

To participate in the Odyssey of the Mind Program, the school must send $90 U.S. to P.O. Box 27, Glassboro, New Jersey, 08028. The membership supplies the school with the current annual long-term problems, a rule book, related additional curriculum materials and a quarterly newsletter.

The Alberta O.M. Association provides support services, videos, workshops and newsletters to members. A fee of $10 may be sent to one of the executive listed at the end.

ODYSSEY OF THE MIND AND COACHING

Focus for the year is on three main areas: long term problem solving, style, and spontaneous problem solving. During the presentation these three areas will be described in detail with demonstrations, overheads and videos. In brief, the long term problems (worth 200 points) cover a wide range of interests. Some are engineering problems, one is architectural, and usually there is one based on literature or history. Style (worth 50 points) is elaboration of the long term problem. It is that dimension of the long term problem that goes beyond the solution of the problem to provide additional audience entertainment. Style is the theme, the props, the costumes, music, humour, an original cohesive performance etc.. In general, it is the power and the impact of the overall presentation. The spontaneous problems (worth 100 points) take only a few minutes to solve. Some spontaneous problems are verbal, while others are "hands-on", such as moving a raw egg with the implements given through a series of obstacles. Teams do not know these problems in advance of the competition but prepare throughout the year to develop speed and creativity in solving this type of problem.

TEAM COMPETITION

Odyssey of the Mind teams consist of five to seven members. They are the only persons allowed to contribute to a specific long-term problem's solution. No coach or parent is allowed to contribute to the solution. Competition is by division. The divisions are as follows:

Division I	Kindergarten through fifth grade
Division II	grades six though eight
Division III	grades nine through twelve
Division IV	college and university students

The highest grade represented on a team determines the division in which the team must compete. Each problem indicates the division(s) for which competition is held.

Teams in most locations of Canada compete on a provincial level. Teams advancing from each Provincial association's final competition become eligible to attend the World Finals. The 1993 Alberta provincial finals will be held in Calgary March 27, 1993. The 1993 World Finals will be held at the University of Maryland in Baltimore at the end of May.

MORE INFORMATION

If you are interested in the Odyssey of the Mind Program in Alberta and would like more information, please contact the following individuals:

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Young Gifted Learners in a Multicultural Society

Sylvia McPhee
McPhee Associates, Toronto

> "There's no such thing as an unrealistic goal, just limited imagination." Roger Crawford

> "MULITICULTURALISM is a sharing of cultures. It empowers individuals who then share that strength among groups. It expands cultural consciousness into global consciousness. Multiculturalism, as described by Canada's Secretary of State, is "a mandatory social skill" that is just as essential as literacy. In education, it is no longer an option, but an integrated part of any well developed program." Maureen Cech

YOUNG GIFTED CHILDREN IN A MULTICULTURAL SOCIETY

This interactive workshop is designed to raise awareness of the needs of young gifted learners.

After reviewing the multidimensional needs and characteristics of young children and the multidimensionality of intellectual development, these concepts will discussed against the demands and challenges of learning and teaching in a multicultural society.

The universality of gifted potential will be explored in terms of how cultural differences affect identification. Stategies for observing young children and their potential giftedness will be explored. Creativity, critical thinking and motivation will be discussed.

Once teachers become aware of the broadened definition of giftedness, the inconsistencies in identifying the culturally diverse, the behaviour in other cultures that may influence observation, the value of parent and peer opinions and strategies, the task of finding and programming for these children is no longer onerous. It can be done - and done fairly!

> "Fairness is not that everyone gets the same, but that each one gets what he or she needs."

Sylvia M. McPhee,
Toronto, Canada

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Affective Characteristics of Gifted Individuals as a Guide for Selection of Counselling Techniques

Sal Mendaglio
The University of Calgary

Do we need special techniques when counselling gifted students?

After years of experience, this writer concludes that the techniques based on approachers to counselling currently available are appropriate for use with gifted students. The important consideration is not the creation of novel techniques but the matching of techniques to the characteristics of this group, in particular, the affective characteristics.

Affective Characteristics

Clark (1992) and others present a variety of traits associated with gifted students. These are categorized according to cognitive, affective, social, physical. Of particular concern here is the affective characteristics which typically include such traits as: perfectionism, leadership ability, moralism, advanced sense of humour, intensity, and sensitivity. It is the latter two characteristics that are most applicable for counselling. Sensitivity and intensity refer to, among other things, the emotional experience of these students. In their sensitivity, gifted children and adolescents are tuned into the feelings within themselves and others. They are more readily moved or hurt by events around them in contrast to nongifted peers. Their intensity corresponds to their depth of feelings. Counsellors working with these clients need to be cognizant of these two traits generally attributed to this special needs group.

Affective Characteristics as a Guide for Selection of Counselling approaches

Coincidental to the terminology used in characteristics of the gifted, classification of counselling approaches also uses the term affective. In the counselling usage of the term, however, it is more restricted to the notion of emotionality and would not reflect the exact usage of the term as educators of the gifted tend to use it. In any case, a typical approach to classification of the diverse counselling approaches would include: psychoanalytic, cognitive, behavioral, and affective. It is argued that the affective counselling approaches which are best suited for gifted clients. The rationale goes well beyond the match of terminology. The following is an example of how these approaches are characterized in the current literature (see Gladding, 1992). Affective approaches are said to emphasize the following:

- emotions are the contributing factor to human actions and reactions.
--change can only occur in conjunction with effective handling of emotions.
--the individual's interpretation of reality is more important than reality itself
--the counsellor-client relationship
--growth and development of the individual

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Two Major Affective Approaches

The person-centred approach of Carl Rogers and the gestalt approach of Fritz Perls are prime examples of these approaches to counselling. The first is more accessible to teachers as well as counsellors, while gestalt techniques can only be used by experienced counsellors.

Rogers did not use the notion of techniques, rather he talked about therapeutic conditions. He believed that client growth would occur if the counsellor provided the proper atmosphere in a real relationship with the client. These conditions included positive regard or acceptance, genuiness, and empathy. The client needs a nonjudgmental attitude from the counsellor. He or she needs to feel accepted--not evaluated--by the counsellor. The counsellor needs to be a real human being in the encounter with the client. Such conditions are said to facilitate self-disclosure and an internal focus by the client. Empathy is a central concept in this approach. In the application of empathy the counsellor attempts to understand the client from his or her point of view. This attempt to understand the internal frame of reference of the other is communicated in language that is understood by the other.

In the gestalt approach the emphasis is also given to the quality of relationship between counsellor and client. In contrast to the person-centred approach, the gestalt counsellor focuses the client in the present--keeping the client in the here and now is a major pre-occupation of this theory. Also experiencing in the present moment is highlighted. The counsellor does not engage in interpretation and the client is discouraged from engaging in intellectualization. There are a variety of techniques used in this approach. Confrontation is one commonly used interviewing technique. This usually takes the form of presenting discrepancies (e.g., between verbal and nonverbal behaviour) to the client. Other techniques are more dramatic and require experience to apply them properly. The empty chair is one such technique. In this technique, the client may be asked to conduct an imaginary dialogue between self and a significant other or between two aspects of self. The client is asked to move from one seat to the other in the course of playing both parts of the scenario.

Conclusion

Aspects of both person-centred and gestalt approaches seem particulary applicable to work with gifted students. The person-centred approach emphasizes the acceptance and empathy that these clients require. The gestalt approach emphasizes the experiencing in the here and now which replaces the propensity of gifted students to overuse their intellect.

Feeling Bad Can Be Good: Using Dabrowski's Theory to Reframe Gifted Children's Adjustment Difficulties

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Traditional approaches to the education of the gifted student have focused on cognitive dimensions and have emphasized providing an enriched academic environment. We believe that a more global approach is called for, encompassing the overall personality characteristics and development of the individual. The impact of being gifted is often ambiguous and many with gifted potential fail to achieve as expected. We believe that this may often be due, in part, to the high anxiety and conflict commonly experienced by the gifted and their failure to learn to cope with the negative aspects of their gifts. The Theory of Positive Disintegration, developed by K. Dabrowski, provides a useful framework to conceptualize, understand and assist the gifted student (Dabrowski, 1937; 1964; 1966; 1967; 1970; 1972; 1977; Dabrowski and Piechowski, 1977). This presentation is an overview based upon our understanding of Dabrowski's Theory and our views of its application to the gifted.

Dabrowski's theory presents a multi-dimensional, developmental approach, emphasizing an understanding of the unique potentials of a given individual. Multiple dimensions are assessed, for example; intellect, imagination, emotion, and indicators of the potential for development. A multi-level approach is used to describe the diversity of behaviour and types of personality observed in people. This methodology allows for a differentiation between higher and lower levels of function and their interaction. The result is a more articulate and descriptive theory of personality -a theory particularly applicable to the understanding of the gifted.

A central feature of psychological growth is a series of disintegrations - progressive contradictions and conflicts that arise from a person's experience of life. People often tend to be passive and fail to see these contradictions, allowing their views be formed for them, largely by society. Positive disintegration is a developmental process that calls into question our readily accepted adaptations to life. We come to wonder if our automatic endorsement of society's values is proper. We come to question our basic reactions to things, no longer able to simply accept what we are told or to follow the behaviour of others. We begin to differentiate our attraction to or rejection of objects and goals based upon our own accumulating experience, feelings and conscience. Over time, conflicts produce increasing inhibition, cautiousness and reflection that increasingly influence decisions and behaviour. Behaviour governed by primitive factors (how life is and how I should act based upon my impulses and according to society) diverges into an emerging inner sense of how life could and should be. As this bifurcation intensifies, conflicts and disintegrations become a fundamental, inevitable and positive component of development.

Conflicts and disintegrations are carefully evaluated to expose potential positive, developmental aspects. When appropriate, emphasis is placed upon helping the person to recognize and accept these difficulties, to see their positive aspects and to learn to cope with society and life.

From Dabrowski's perspective, one critical aspect of developmental potential is an over-excitability in response to stimuli. We believe that over-excitability is a critical driving force in the life of many gifted students, but an ambiguous one, contributing both positive and negative features: positive in that one's perspective of life is enlarged, allowing one to fully appreciate the magnificence and joys of life; negative in that overexcitability can also be extremely upsetting as a great deal of human suffering, injustice and sorrow is clearly brought into focus. This can overwhelm a sensitive student's emotions and may lead to depression, breakdown or even suicide. As these intense perspectives become multi-levelled, they encompass visions of both the lowest, grim reality of life and of the highest, real possibilities of life.

Dabrowski elaborated a hierarchy of five types of overexcitability: psychomotor, sensual, intellectual, imaginational, and emotional. Emotional overexcitability is at the heart of advanced developmental processes. A person with average excitability tends to experience emotions in social contexts, based upon well defined social roles and expectations. In contrast, the intense experience of emotional overexcitability plays a prominent role in giving a person a very unique and private sense of direction and meaning. The person's unique experience of their emotional and cognitive dynamics stimulates critical self-examination. The learned and often robotic behavior and values we accept so readily from society, instilled by parental and institutional education, come to be questioned and critically evaluated. Through the mechanisms of disintegration, the "what is" of instinct and socialization comes to be rejected and replaced by a growing sense of how life "ought to be". The latter reflects the development of a hierarchy of individualized personal values and the "new", evolving personality of the individual. These changes increasingly ensure that behaviour is authentic and is based upon the individual beliefs and choices of the person.

Dabrowski outlined five levels to describe the process of psychological development. Advanced development begins when the previously socially integrated self of Level I undergoes varying degrees of disintegration, starting with simple, isolated, spontaneous and uncontrollable disintegrations common at level two. Conflicts at the third level take on a broad vertical nature, reflecting the introduction of higher versus lower, multi-level conflicts. Conflicts begin to wane at level four as development increasingly becomes global, self-directed and organized. At the highest level, a second functional integration occurs. This re-integration is comprised of a critically thinking, autonomous self governed by authentic emotions.

We believe that the gifted, as a group, possess strong intrinsic developmental potential and therefore will also exhibit the accompanying overexcitability, conflicts, disintegrations and reintegrations of advanced development. If this is the case, many gifted students may follow a course of development similar to that outlined above.

Dabrowski advocated a long term, well planned program for each student based upon their unique presentation of potentials, personality and interests. A careful, multidimensional assessment of the student is the first step toward establishing a personalized educational and counselling program. Many of the initial developmental experiences are dominated by conflict, anxiety, self-doubt, fear, feelings of worthlessness, maladjustment and depression. Rather than treating these as symptoms to be ameliorated, developmentally focused counselling can assist in coping with these features in a positive and developmental perspective. The student's personal and academic growth must be facilitated simultaneously, guided by individualized plans overseen by the student, student-mentors, teachers, counsellors and parents.

Dabrowski enlarges upon the traditional, cognitively based approach to the gifted by the inclusion of the developmental and emotional features of the gifted. Similar efforts in this direction are also appearing in the literature, for example, although Dabrowski was not mentioned, Blackburn and Erickson's (1986) views appear very reminiscent of Dabrowski's, including their use of the term "supersensitivity". In addition, Piechowski has developed an approach based upon Dabrowski (Piechowski, 1991).

In conclusion, Dabrowski advocated an individualized educational approach utilizing a developmental counselling perspective. The reframing of the gifted experience and an understanding of both the positive and negative implications of being gifted, minimizes the negative effects of developmental conflicts and encourages psychological adjustment and individualization. This strong foundation, in turn, facilitates cognitive enrichment allowing the gifted to better achieve to their full potential, both academically and as human beings.

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Career Development for the Gifted and Talented

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Issues in Career Education for the Gifted

The professional literature on career education for the gifted suggests that career development programs must address the following issues: (a) multipotentiality, (b) expectations, (c) lifestyle, (d) investment, (e) mobility, and (f) innovativeness. The following sections will provide a brief overview of each of these issues.

Multipotentiality. One of the difficult problems is that of multipotentiality. Many gifted students are capable of succeeding at whatever career they choose. In addition to having the aptitude to succeed, gifted students tend to have a diversity of interests. Since early specialization is a correlate of eminence, there is a tendency for parents and teachers to exert pressure on a child to specialize as soon as possible. Such pressure is likely to create tension for the gifted individual. The key challenge is to provide educational experiences that will enable an individual to be "competitive" in terms of the content of a discipline without prematurely channelling the individual.

Expectations. The expectations of significant others (parents, teachers, and peers) can exert tremendous pressures for gifted individuals. Some children may be overwhelmed by constant exposure and reinforcement for considering particular careers such as law or medicine. Other children may have great difficulties convincing their parents that higher education is a legitimate pursuit. Certain cultural groups are likely to value geographic proximity as an important determinant of career choice. It is also likely that sex-role socialization beliefs lead to differential expectations for males and females.

Lifestyle. Although the media may promote glamorous visions of many careers, reality entails more sobering visions. Each career involves a unique lifestyle. Some lifestyle considerations include: (a) the hours one works, (b) the clothes one wears,

(c) the people one associates with, (d) the amount of time spent with family, (e) the amount of travelling one does, and (f) use of leisure time. The congruence between lifestyle demands and lifestyle preferences is likely to affect potential job satisfaction. Individuals must identify their own lifestyle preference and experience the lifestyle demands of various careers.

Investment. The educational preparation required for entry into most professional fields is extensive. Such preparation involves great financial and time commitments. Unless one is independently wealthy, the postponement of parenthood and possibly marriage seems a practical choice. Due to socialization experiences and expectations, the decision to defer family life until some career goals are met is more difficult for females than males. Since people tend to marry others of similar educational levels, the number of potential spouses decreases as one's educational level increases. Given such great demands, the challenge is to find ways of helping individuals mobilize their energy to overcome obstacles and/or find ways to alleviate as many of the barriers as possible.

Mobility. The types of occupations that many gifted individuals aspire to are likely to force them to leave their home community to seek training experiences and jobs. This can be a very painful experience for individuals when parental sanctions and cultural values denigrate this choice. Changes in social class standing, which may accompany educational and occupational attainment, can lead to lifestyle changes that alienate an individual from one's home community. This alienation is compounded when exposure to pluralistic value systems decreases uncritical acceptance of the monistic systems in which one was raised; leading to further separation from one's parents and home community.

Innovativeness. Many currently-available career options are the direct result of the inventiveness of gifted individuals. The field of biochemical engineering did not exist until someone combined interests in biology, mechanics and engineering. Such combinations require greater investments than focusing on just one career. As technological breakthroughs make new careers possible, it is important to prepare individuals to "invent" their careers if necessary.

Career Development Components

The following sections will briefly describe seven components that I view as essential if the career development needs of the gifted are to be met. Although the components are presented linearly, they are conceptualized as being interrelated and dynamically influencing each other.

Content acceleration. One of the easiest ways of shortening the heavy time and financial sacrifices that professional aspirations require, is to permit individuals to accelerate their educational programs. Accelerative possibilities include early entrance to college, part-time college coursework, advanced placement, subject-matter acceleration and grade skipping. Research indicates that accelerative practices are extremely beneficial for gifted students.

Self-awareness. Standardized personality tests can be used to help individuals identify their interests. A student's profile on a measure such as Vocational Preference Inventory will provide information about the individual's differentiation of interests. Directive counselling can be implemented once interests re differentiated. Testing can also be used to evaluate the effectiveness of self-awareness training.

Self-concept. A secure self-concept has been viewed as a critical component for the development of eminence. One needs a positive self-image to cope with the expectations, investment demands, and mobility factors that high aspirations entail. Self-concept measures can be used as part of the self-awareness component. A great variety of materials have been developed to enhance self concept.

Interpersonal effectiveness. Since self-concept is greatly influenced by an individual's family interactions, it is important to develop an effective style of communicating. Skills such as self-disclosure, empathy, warmth, social relaxation, assertiveness, interaction management, descriptiveness, sensitivity to feelings, flexibility, and relationship stage skills are characteristic of competent communicators.

Creative problem-solving. Training in creative problem-solving can help individuals cope with the investment and mobility problems. The creative problem-solving process consists of five steps: (a) fact-finding, (b) problem-finding, (c) idea-finding, (d) solution-finding, and (e) acceptance-finding. The process involves an oscillation between divergent thinking, a listing of many brainstormed alternatives, and convergent thinking, focusing on the correct answer.

Sex-role awareness. Special effort should be made to eliminate arbitrary sex-role stereotyping. Techniques as direct communication and education on the negative impact of sex-role stereotyping, career decision-making simulations, exposure to role models, formation of support groups, same-sex career days. The interpersonal skills component will help individuals interact assertively with others.

Stress-time management. Current focus on career burnout indicates a need to provide individuals with stress and time management strategies. Stress can be alleviated through progressive relaxation and environmental sounds. Time management strategies enable gifted students to set priorities.

Using Art as an Identification Tool for Gifted ESL

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For years, the subject of identification of gifted students has generated discussion, controversy and concern. In our present times of shrinking funding for gifted programming, coupled with cuts in such classroom support systems as psychological services and resource teachers, we must by force of circumstance, look to alternate means of identifying our gifted population. Authorities such as Howard Gardiner encourage a pluristic view of IQ by using terms such as "mulitiple intelligences".

When we reflect on the ways in which we first recognize a young gifted child, language is usually a factor. The verbally fluent child full of questions and curiosity, who reacts quickly and articulately when a problem is posed, who makes keen observations, who senses anomalies, and paradoxes, and who exhibits a finely honed sense of humor is the child nominated for consideration for gifted programming.

But what of our ESL population? When spoken language creates a barrier rather than a bridge to communication of thoughts and ideas, we must look to alternate forms of communication. Art is just such a universal language. The art of young children reveals their developmental stages. Young children of all cultures work through an increasingly complex symbol system from the "scribble" stage to the pictorial. The richness of their symbol system gives insight into the child's view of his/her world, his/her perceptions, awareness and observational skills.

To make assessments of a child's intellectual functioning based on his art production, it is essential that judgments be based on a large sampling of work because the visual vocabulary, or symbol system, varies according to purpose, mood and occasion, just as does speech. A familiarity with the developmental stages of young children's art prepares the viewer to recognize those examples which appear more thoughtful or complex, just as we recognize the calibre of ideas in spoken language. Some of the indicators to look for when reviewing children's art with the purpose of using tne art as one of the indicators of giftedness are:

- use of an advanced symbol system (e.g. a five year old drawing an accurate profile of a head with a protruding nose)
- demonstration of memory - recall
- elaboration - many details or, conversely, the ability to simplify but to retain the essential elements

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- demonstration of awareness of and sensitivity to his/her environment, usually observant
- originality, creativity, innovation
- evidence of problem solving - this may be in the way that either the subject or the materials are handled
- sense of humor, sense of delight that is communicated to the viewer
- original viewpoint or approach to the subject
- ability to become immersed in the production of art for an extended period of time
- sophisticated (for the age) handling of materials or subject
- willingness to experiment with a variety of mediums and subjects
- generation of many ideas, productivity
- ability to combine observations or ideas, often in unique ways
- ability to produce works which speak to the viewer, conveying the child's feelings or emotions.

Obviously the above indicators are best understood by actually viewing examples of students work. The more one views children's art, the more one understands that art is truly a visual language which communicates as clearly as spoken language, conveying the reactions of a child to his/her environment and expressing the complexity and clarity of the child's ideas.

Attitudes Towards, Preferences For, and Knowledge Of Computers Among Gifted and Average Junior High Children

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Computer technology is advancing at an unbelievably fast rate. While industries, and businesses are at the forefront in using this technology, academic institutions seem to be rather slow in adopting it. Having said that, it is also true that some schools are requiring that their students use computers to benefit them. Since we as educators of computer uses in education teach about the applications in the school classroom, I felt that there is a need to examine the various attitudes children have towards computers, their preferences for and experiences with different kinds of software, and their knowledge of computers and its applications.

The Study: Its Purpose and Research Questions:

A study was conducted in 3 schools in Calgary to examine: a) attitudes towards computers; b) preferences for different kinds of software; and c) knowledge of computers and computer applications. This was an exploratory study. The research questions were:

1) What attitudes do junior high children have towards computers?
2) What software do the children in junior high classes prefer?
3) What is the extent of knowledge of computers among junior high children?

Methodology:

A Total of approximately 300 consent forms were sent to the 3 schools selected for this study. A total of 157 junior high children from the 3 schools in Calgary (one from the Public Board and 2 from the Catholic Board) volunteered to participate.

Variables and Procedures

Data about some background variables was collected. These were age, grade and gender. Research variables were:

a) Computer attitudes. A questionnaire about attitudes towards computers consisted of 15 items. These items were chosen from an attitude scale developed by Violato, Marini, and Hunter (1991) to assess the attitudes of preservice teachers. The items were statements referring to factors such as gender bias, value of computers, comfort level, and liking. Each statement could be responded to as strongly agree/agree/disagree/strongly disagree. Some examples of the statements are "I get confused when I sit in front of the computer", "Using computers is more important for girls than boys", "computers help me to learn". A few adaptations were made to tailor the items to junior high children.

b) Preferences for different kinds of software: e.g., various programs such as Bank Street Writer, The Factory, and Newsroom. Names of 22 programs were categorized as wordprocessors, integrated packages (e.g., Appleworks) classroom publishing programs (e.g. Publish it), problem solving software (e.g., Factory, Gertrude's Puzzles), Computer-Assisted- Instructional programs, and programming languages (Logo, Basic). The 22 programs were to be rated on a 5-point Likert scale from "Like very much" (2) to Do not like at all (-2). A value of 3 indicated that the student had never used the program.

c) Knowledge of computers hardware and software: Sixteen true/false items were constructed to test knowledge of hardware and software. These items were statements much as "A computer screen helps to get a printout", "I can calculate how much pocket-money I get every month and how much I spend in a week with a spreadsheet program", and "The Keyboard helps to enter information into a database".

Findings of the Survey:

Since this was a descriptive study, findings of the survey will be reported purely as descriptive data. Overall, 157 students from Grades 7, 8 and 9 participated in the study. Ages ranged from 12-16 with a mean age of 13.3 years. There were 79 males and 66 females (12 students did not indicate their gender). Out of the 157 students, only 40 students were labelled gifted by the schools.

Attitudes towards computers

Table 1 is a summary of the statements and how they were responded to by gender and by gifted and average children. The 1st column beside the statements is the overall mean. The rest of the columns are percentage of students indicating agree or strongly agree to the statements. Note that statements 3, 6, 10 and 14 have a negative connotation. Statement 7 was intended as an enthusiasm item, hence a positive item, but it may have been taken as being negative. A dash (-) in every statement must be substituted by the word computer.

Table 1
Attitudes Toward Computers

		Overall Mean	Gender		Gift	
			Boys	Girls	Gifted	Average
1.	- are fun for me	3.1	86	84	82	81
2.	I like using -	3.3	92	91	95	91
3.	Confused in front of -	2.0	16	28	13	24
4.	- help in writing essays	3.0	75	49	82	70
5.	Girls and boys enjoy - equally	3.0	81	46	84	70
6.	Bored when I work on -	2.0	20	26	11	27
7.	Cannot stop working on -	2.4	47	36	44	40
8.	- are useful and necessary	3.5	95	97	95	97
9.	Job require - work	3.6	96	97	91	99
10.	More important for girls than boys	2.4	5	3	3	3
11.	- help me to learn	3.2	83	93	92	86
12.	Comfortable using -	3.2	91	87	89	88
13.	Will use - when grown up	3.4	91	95	99	91
14.	More boys than girls use - well	2.7	21	6	24	12

Preference for software

Table 2 summarizes the data for software preferences for gender and gifted/non gifted. As mentioned earlier, the Likert Scale "Like very much" to "Do not like at all" was applied to 22 programs. The table includes data for only those programs that showed a difference by at least 5 points on the gender and gift variables. The numbers in the cells are percentages of students who have never used the software (Column i) and percentages of students who like or like very much the software listed (Column ii). for a percentage of students who do not like or do not like at all, add columns i and ii and subtract from 100.

Table 2
Preference for Software

Software	Gender				Gift			
	Male		Female		Gifted		Average	
	I	II	I	II	I	II	I	II
Appleworks	22	53	23	68	36	39	18	66
Bankstreet Writer	72	20	58	38	62	23	66	31
Applewriter	71	18	56	40	72	18	62	32
Fredwriter	64	24	40	48	39	48	60	28
Publish It	89	8	81	19	-	-	-	-
Dazzle Draw	85	12	54	40	-	-	-	-
Newsroom	-	-	-	-	77	21	87	11
Any program to teach Math	17	61	9	81	8	74	16	67
Any program to teach Science	65	16	52	33	51	-	60	-
Any program to teach English	58	23	42	51	-	-	-	-
Programming language BASIC	37	43	50	37	44	51	41	35
Programming language LOGO	31	51	39	52	31	38	35	55

Knowledge of computers

The 16 True and False items were divided into items that referred to hardware concepts and items that referred to software concepts. Scores were computed for hardware and software concepts. A multivariate analyses of variance was worked out with hardware and software scores being the dependant variables and gift (average/gifted) and gender (male/female) being the independent variables.

The interaction between gender and giftedness was not significant in producing the differences in hardware and software scores. However, significant differences were found between the average and gifted children (F=3.74, p=.027). Univariate F values showed significant differences on both hardware and software concepts (Hardware: F=6.007, p=016; Software: F=3.15, p=.078).

Gender did not have a significant affect on the variation in scores on hardware and software. However, Univariate F value showed that some difference was seen between the genders on the scores on hardware (F=4.303, p=.04).

Discussion and conclusion:

As observed earlier, this was purely an exploratory study. The intention was not to generalize to a larger population or make definite causal relationships. The study was undertaken to describe the status as it exists.

Attitudes towards computers

Statements 3, 4, 5, 7, 11, & 14 seem to be responded to differently by boys and girls. Most noteworthy differences are found on Statements 4 (computers help in writing essays), 5 (Boys and girls enjoy computers equally) and 14 (More boys than girls use computers well), with boys agreeing more to these statements than girls. In general, it seems that more boys than girls feel comfortable using computers.

The gifted children and average children seemed to differ on their responses to Statements 3, 4, 5, 6, & 14. In general, the gifted children seem to enjoy computers more and find it more useful. Statement 14 (more boys than girls use computers well) is agreed to more by the gifted than the average children.

Preference for software

More boys than girls seem not to have used the software listed. Between the gifted and the average, there is considerable variation in preferences. More noteworthy is the difference in preference for programming languages BASIC and LOGO. Gifted students seem to like BASIC while average students like LOGO.

Knowledge of computers

Although the aim of working out these statistics are not to generalize to a larger population, the findings are of interest for further investigation. Significant differences were found between the average and gifted children on hardware and software concepts, with the average children scoring higher than the gifted. Boys scored higher than girls on the hardware concept.

This study formed the first part of a bigger study on development of talent in computers. From the results of this analysis, a total of 10 students will be selected to conduct an in-depth study of how development of talent in computers (specifically, development of skill in using a particular software) takes place.

"Where are the Wise Women?"
A Reflection on the Issues Surrounding the Educational Experience of Gifted Girls

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The place: a school gymnasium
The time: the dress rehearsal for the Christmas pageant.
The scenario: A teacher is directing the children's activity and is arranging the gold, frankincense and myrrh. A little girl comes up to her teacher, points to the wise men, and asks, "Where are the wise women?"

Within the past two decades, the right of exceptional youth to educationally appropriate programming have been enshrined in law in several provinces. Among the pupils who have benefitted from these provisions are gifted pupils -- those educationally exceptional youth are gifted learners -- those pupils whose intellectual needs cause them to be placed among exceptional students.

A cursory glance through any current journal of or about the education of gifted pupils will re-enforce the fact that gifted pupils in no way form a homogeneous group. The literature reveals many "subgroups" of gifted pupils: the culturally-diverse gifted pupil; the pre-school gifted child; the physically-challenged gifted pupil; the gifted-learning disabled pupil; the underachieving gifted pupil -- and the gifted girl. The literature maintains that the needs of these subgroups differ significant from the gifted 'norm' as to require even more specialized considerations in identification and program development.

While many educators readily accept the notion of subgroups within the gifted population, some query the inclusion of gifted girls as a separate subgroup. Callahan (1980) justifies the existence of gifted girls as a subgroup with a convincing argument. Callahan suggests that unlike gifted boys, gifted girls do not grow up to be publicly recognized adults. Callahan cites the fact that the "overwhelming number of adults who are identified as gifted and creative are male." Or, in line with the opening anecdote, gifted boys grow up to be "wise men" while gifted girls do not grow up to be publicly recognized wise women.

Because gifted girls fail to achieve their potential, they require specialized programming and counselling.

Why do gifted girls fail to realize their potential? Three possible explanations are commonly identified as factors:

- biological: girls lack the innate ability to achieve.
- environmental: girls' environment does not encourage them to achieve.
- psychological: girls' personality inhibits their achievement.

The biological factors identified with women's lack of achievement are both historic and contemporary. These arguments perhaps reached their heyday in the debates surrounding women's admission to institutions of higher education at the turn of the century. Rosenberg (1984) demonstrated that well-known and well-published nineteenth century scholars such as Harvard Medical School's Dr. Edward Clarke, respected Philadelphia gynecologist Dr. Thomas A. Emmet and neurologist Dr. S. Weir Mitchell argued, in Dr. Clarke's words that because of their biological differences -- especially their intellectual differences --"the identical education of the two sexes is a crime before God and humanity that physiology protests against and that experience weeps over." More recently, the discussion of the "math gene" emanating from the research of Stanley & Benbow (1980) and the brain-mind research of Epstein (1974), Topfler (1981) and Sylwester (1982) have caused these biologically-based factors to surface once again. Simple put,these researchers argue that the biological construction of young women's brains prevent them from learning at the same rate and in the same mode as young men.

It is noteworthy that a century after the achievement of women's rightful place in higher education was achieved, the use of biologically-rooted arguments as a basis for the under-representation of achievement by women in the literature, is to say the least, problematic.

The environmental and psychological factors are closely linked. The Women's Movement of the Sixties and Seventies has caused educators, psychologists and sociologists to take a very close look at the definition of societal roles and subsequent gender issues. The family, the media, textbooks and even teachers' behaviours are all seen to contribute to the re-enforcement of behaviours among boys and girls. Callahan (1980) Thompson (1984), Blausberg (1978) Addison (1983), Kerr (1985) Murphy-Poole & Smyth (1986) and Callahan & Reis (1989) conclude that these environmental factors impact so significantly on the psychological development of bright and gifted girls that these factors do the most to underline the girls' potential. Verheyden-Hilliard (1983) reaches similar conclusions

> the gifted girl is -- as is every girl -- under terrific pressures to conform to societal expectations of 'appropriate' female behaviors. These stereotypic expectations are a terrible threat to the development of potential in any girl. For the gifted girl, the negative reaction is often worse because her giftedness may take her so far from stereotypic behaviors.

Researchers who have studied achieving gifted girls point to the roles of 'significant others' who aided the girls in meeting their goals through assisting their personality development. Developing a positive self-concept through appropriate attribution of success and failure; coping with expectations and the 'need' for perfection; developing personal and professional support systems -- all these strategies have been identified as critical factors contributing to the success of gifted girls (Addison, 1983).

While counselling is a critical component in aiding all gifted pupils to maximize their potential, researchers have identified it as an especially critical one in the development of gifted girls (Wailed 1979). Counselling, like education, takes place in three learning environments -- the home, the school and the community. Counselling is both formal and informal; professional and amateur and can be organized around three cluster: academic, career and personal. Many people take on a counselling role in the lives of gifted girls: parents; peers; role models; neighbors; professional counsellors to name but a few. Researchers identify that these counsellors play many critical roles in the process of helping gifted girls to reach their full potential:

- aiding in the recognition and addressing of sex-role stereotypes;
- assisting as a positive force in the development of the gifted girl's self concept;
- helping identify mentors with whom to explore career and lifestyle (Higham & Navarre, 1984; Petersen, 1982).

To summarize this overview of the literature, one can make the following conclusions. Because of their under-representation in the public circles of achievement, and because of their specific and identifiable learning needs, gifted girls do constitute a subgroup of the gifted population. To enable gifted girls to reach their potential as achievers, educators should undertake a program of positive development.

These issues are real and very close to home. In a recent study of adolescent girls, the Canadian Teachers Federation (1990) reported that adolescent girls

> feel pressures and limitations boys are unlikely to experience and that they expressed a lot of resentment towards . . . the systems that seem to favour [their male peers].

Educators are beginning to recognize that the problems exist with the achievement of girls in general and gifted girls specifically. It is now time that educators take appropriate steps to attempt to ameliorate this situation.

WHAT CAN TEACHERS DO TO ASSIST GIFTED GIRLS IN MAXIMIZING THEIR POTENTIAL

1. Ensure that courses and classes reflect both the male and female experience.

2. If females are missing from a subject, ask the question WHY?

3. Ensure that all pupils see that the combination of being bright, achieving and female is possible.

4. Use inclusive language. Check that the pronoun 'he' is not always used to mean everyone.

5. Observe how pupils are re-enforced and rewarded: are boys rewarded for intellectually challenging remarks and girls for 'appropriate and conforming' behaviours?

6. Discuss this issue with males and females. It is not a female only issue!

7. When nominating children for programs for bright/gifted pupils, look to ensure that the identification criteria is not biased against young female students.

8. Check with those providing guidance and counselling services to ensure that they are aware that gifted girls have special needs and that those needs are being addressed.

9. Advocate on behalf of gifted girls -- especially with their parents, their teachers, their classmates, and themselves!

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Among two of the most useful publications exclusively devoted to the topic of gifted girls are:

Addison, L.B. *Gifted Girls: Inservice Resources Handbook*. Bethesda, ML: The Equity Institute, 1983.

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Canadian Association of University Women. (The University Women's Clubs). Each club has a roster of women who can be called on for speakers etc.

Women's groups within professional societies e.g. Women's Interest Group in the Professional Engineering Society, Women Lawyers, Farm Women's Group, WISE (Women in Science and Engineering: many chapters across Canada)

Status of Women Committees within the school boards and the teacher federations

University and College Women's Study Programs, such as
Women's Studies in Education Centre
Ontario Institute for Studies in Education
252 Bloor Street West
Toronto M5S 1V6
(416) 923 6641

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School-Wide Enrichment Centres

Carney Wakaryk / Joanne Lozynsky / Clarissa Honnet / Lorie Kaltenbach
Calgary Catholic Schools / St. Leo's Centre

SCHOOL WIDE ENRICHMENT CENTRES

I.	INTRODUCTION		
II.	WHAT?	*Definition*	
III.	WHY?	*Purpose*	
IV.	WHO?	*Planning* ➡	*Decision Making*
	and HOW?	*Developing* *Operating* } ➡	*Implementation*
V.	CONCLUSION	*The Essentials!*	
VI.	QUESTIONS		
VII.	VIEWING OF SAMPLE ACTIVITIES		

II. WHAT IS A SCHOOL WIDE ENRICHMENT CENTRE?

What Happens There?

- All students Grades 1 to 6.
- Weekly basis.
- With class.
- Station activities.
- Involves critical and creative skills practice.

III. WHY HAVE A SCHOOL WIDE ENRICHMENT CENTRE?

- Alberta Education Mandate.
- Provides an opportunity to practice thinking skills.
- Meets needs of a range of abilities.
- Motivates students.
- Fosters cooperative problem solving.
- Kids like it!

IV. WHO and HOW?

Planning - Decision Making

1. Focus - Thematic Approach
   - Subject Area Approach
   - Skill Development Approach
2. Scheduling Considerations - time, space.
3. Resource Gathering and Station Activities.
4. Record Keeping.
5. Evaluation Considerations.

DEVELOPING - IMPLEMENTATION

1. Centre Preparation
2. Teacher / Aide Orientation
3. Aide / Parent Orientation
4. Teacher / Student Preparation

OPERATING - IMPLEMENTATION

1. Station Organization
2. Scheduling
3. Record Keeping
4. Student Preparation

V. THE ESSENTIALS!

1. Commitment and support of Administrators.
2. Support of teachers.
3. Access to resources / funds.
4. Dedicated space.
5. Teacher Aide.
6. Parental support.

Successful Learning Strategies to Use With Gifted Learning Disabled Students

Janet Wees
Calgary Board of Education

The classroom, in which these strategies were used, was housed in Huntington Hills Elementary in Calgary, for four years. The students consisted of students aged nine to twelve years, who had been placed from regular grades as well as learning disabled classes. For the first two years the population was all male, the last two years there were two girls. The teacher has an undergraduate degree in Special Education, a graduate diploma in Educational Psychology (with emphasis on Learning Disabilities) and a Masters in Gifted Education.

When the program began there were virtually no resources to serve as models. However, over the years, the program evolved through experimentation, student input and reading of articles and books. It became largely a kinesthetic, experiential program which showed very satisfactory progress, and helped improve self-esteem greatly. The definition of kinesthetic being total body involvement from the movement of the body to the mind and emotions. This involves not only using manipulatives in Math, but feelings of being in the situation which is being studied. When the children were immersed in what they were learning, the vocabulary, writing and spelling became more meaningful and was used in a natural way.

The issue of remediation versus enrichment was quickly resolved, when it was found that the students responded much better to whole theme programming with remediation put in incidentally as a problem arose. The program ran on a yearly theme, some of which were Empowerment, One World, Inter-relationships, and Explore and Discover. Learning styles inventories were given the students to discover how they preferred to learn. Most of the students preferred to learn kinesthetically, as well as orally-expressive. This was borne out in their extreme enthusiasm for drama, art and science.

Independent projects were set up using Bloom's categories of thinking and giving wide choices which reflected their preferences for learning. The topics chosen had timelines, and outlines to give structure. They were worked on exclusively until they were completed; then the next activity would begin. This was decided after the first year, when the students said they didn't like their day compartmentalized into sections.

The bulk of the program consisted of simulations which are interactive experiential learning activities. These put the students right into their learning so they actually felt they were living it. These activities ranged from a Design simulation where they designed their dream home according to their needs and budget, based on an imaginary family situation into which they were immersed to a mock trial held in an actual courtroom with an actual judge. The trial was a real case with witnesses (who dressed the part), lawyers, clerks, security people and a jury. How better to learn about the justice system than to live it!

Other strategies used to motivate the students to learn were the use of high-interest, low-vocabulary books called "Classic Chillers"; blank books which were hard-cover books with blank pages which were filled by children's writing; novel studies which also followed Bloom's taxonomy; letter-writing and receiving answers (what a thrill that was!); making puppets and pop-up books; journal writing with drawings; Readers' Theatre; an at-home reading program; and the use of the Flaro method of learning spelling which involved extensive training in visualization beforehand.

Mathematics involved hands-on, experiential learning of major concepts, as well as daily computation practice. The procedure of pre-test, learn, post-test was used with math. The students thought it was pretty good that they didn't have to do "all the questions".

Some of the ways the students learned better organization was to use walkmans to block out auditory distractions, using carrels for desks (they had partitions on three sides), magazine file boxes for activity storage, daybooks, backpacks, and timetables glued at eye level. We are talking about random, spontaneous thinkers here, and they really need help in organizing themselves.

Socially there was partial integration into music/drama and gym. Some were integrated into science; however, large class sizes sometimes hindered this process. Peer editing, reading buddies, lunches out with the teacher, circle time for discussing issues all contributed to the learning of social skills. An "egg project" held in conjunction with the Human Sexuality unit let them feel what it would be like to be responsible for something precious like a child.

Some of the problems encountered were consistency with at-home programs, the space in the classroom (it was 1/3 the size of a regular room), spelling skills didn't progress as quickly as reading and writing, there are not many kinesthetically-based programs at the Junior High level so there is not a carry-over of similar programs and the students have to conform to traditional methods, it is difficult to get many high-interest, low-vocabulary books because although there are some good ones, they are only going to whet their appetites for more, and there was no computer in the classroom.

Conclusions from these four years are that these students prosper from kinesthetic, experiential programs, need personal involvement with their learning and their teacher, are exceptional in drama and art, have wonderful senses of humor, benefit from simulated learning and are, on the average, random, spontaneous thinkers. They definitely need to be educated with peers, with integration in areas where social skills will be learned. They need enrichment and work on weaker areas. They cannot get that in regular classes as long as enrolments continue to be high, they don't respond well to sequential learning and emphasis on remediation of Learning Disabled classes, and the gifted programs go too quickly. But as long as there is no money forthcoming, these students, and there are many more than you think, will be learning below their potential. They need a chance to bloom.

Gender Issues in Education

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In Alberta women comprise 5% of school superintendents, 3% of high schools principals and 19% of elementary school principals but 63% of all teachers (Rees, 1990). These statistics indicate that men manage and administer our school systems and that women are proportionately underrepresented in educational administrative positions. Why is this gender imbalance present in our educational system? Why is leadership potential more likely to be nurtured and developed by men than women? What can be done to redress this imbalance? In the first part of this paper, I will examine some of the historical antecedents affecting beliefs about the kinds of occupations that are suitable for men and women, and offer suggestions for eliminating gender-related barriers in educational practice.

Related to the general issue of gender bias in educational administration are questions regarding the differential ature of the educational experience in our schools for boys and girls. It is often assumed that boys and girls are getting equal educational opportunities in our school systems but is this the case? Do the myths about gender-appropriate behaviors and expectations which pervade our society affect what happens in the schools? Are boys and girls being given equal opportunity to develop their potential? In the second part of this paper, I will examine gender issues as they relate to classroom instruction, development of self concept, and the differential gender messages contained in the "hidden curriculum" in our schools.

Women in Educational Administration

Why are there so few women in administrative positions in education? Shakeshaft (1989) has researched this question and found that there are many barriers to the advancement of women into school administration. These barriers fall into two main types: role discrimination and access discrimination.

Role discrimination stems from the stereotyped view that school administration is a job for males and that women are "constitutionally incapable of discipline and order, primarily because of their size and supposed lack of strength" (Shakeshaft, 1989, p. 39). Negative attitudes toward women as administrators arose out of centuries-old ideas about male dominance and continue today in assumptions about the preferred status of men in management positions. Access discrimination arises when non-job related limitations prevent or discourage women from applying for administrative positions. Access barriers may arise when recruitment processes are systematically discriminatory against women by virtue of decisions regarding how and where positions are advertised, who is encouraged to apply, and the criteria used in shortlisting of applicants.

The belief in the superiority of males over females has a long history in our society. Walker (1983) has documented how both eastern and western religions have inculcated a belief in the innate inferiority of women by characterizing women as imperfect men with defective intelligence and moral character, lacking souls, intrinsically evil, and born to be subjugated. A scant 100 years ago social psychologists such as Le Bon, the founder of social psychology, had the following appraisal of the status and characteristics of women:

> All psychologists who have studied the intelligence of women, as well as poets and novelists, recognize today that they represent the most inferior forms of human evolution and that they are closer to children and savages than to an adult, civilized man. They excel in fickleness, inconstancy, absence of thought and logic, and capacity to reason. Without doubt there exist some distinguished women, very superior to the average man, but they are as exceptional as the birth of any monstrosity, as, for example, of a gorilla with two

> heads; consequently we may neglect them entirely (1879, pp. 60-61, as quoted in Gould, 1981, pp. 104-105).

These derogatory views of the abilities of females relative to males were challenged by the results obtained from administration of the Stanford-Binet IQ test in the second decade of the 20th century (Terman, 1916). In fact, Hollingworth's (1926) study of highly gifted children in New York City found the three highest scores, all above 190 IQ, to have been scored by girls. Hollingworth challenged the view prevalent at the time that there were more eminent men that women not because of their inherent naturally high abilities but because of social and educational inequalities:

> It is undesirable to seek for the cause of sex differences in eminence in ultimate and obscure affective and intellectual differences until we have exhausted as a cause the known, obvious, and inescapable fact that women bear and rear the children, and that this has had as an inevitable sequel the occupation of housekeeping, a field where eminence is not possible (Hollingworth, 1914, p. 529).

The same belief in the overriding influence of the culture upon the development of individual potential is reflected in Feldman's (1986) analysis of the forces which brought Albert Einstein's genius to fruition. He says "if little Albert had been a girl, I think we would never have heard of her" (p. 172).

We like to think that the situation for females in society has improved a great deal, particularly in the last two decades. However, as Galbraith (1991) points out, the relationship between gender qualifications and principalships has changed little since the 1970 Royal Commission on the Status of Women found that a man was 7.5 times more likely to become a principal than a woman although he was only 2.5 times as likely to have higher qualifications than a woman. "Despite social messages implying substantial change, the majority of today's social realities are that gifted young women of the 1990s will encounter many of the same barriers to the realization of their potential that existed two decades ago." (Hollinger, 1991, p. 135). Attitudes are very slow to change. "Most of the world still believes men to be more suitable leaders because they are supposedly more 'objective' than women and less emotional. The research on the performance of males and females in similar tasks shows no sex differences...but myths die hard (Silverman, 1986, p. 52).

At a conference on Breaking the Barriers: Women in Administration sponsored by the Alberta Teachers' Association in Calgary in November of 1991, the following barriers to women administrators were identified:

- the lack of female role models in administrative positions
- the nature of socialization and its influence on gender-stereotyped behaviors and expectations
- family responsibilities
- the lack of collegial support in self esteem
- opposition to, and lack of understanding about, affirmative action
- career ladder movement affected by interruptions of service due to child rearing
- a lack of sustaining support for women who have attained administrative positions
- biased selection process arising out of gender inequity on selection committees
- the resistance of the old boys' club or network
- the absence of accepted alternative models for practices in administration
- a perception that ATA involvement creates hindrance to administrative promotion (ATA, 1991, p. 32).

At the same conference, the following recommendations for eliminating the existing barriers facing women who seek administrative appointments were proposed:

(1) Eliminate access discrimination. It was suggested that guidelines and policies be developed to improve equity of hiring practices, for example, equitable accessibility to notification of available positions, equal gender representation on selection committees, clear specification of qualifications for advertised positions, and honest and open feedback to unsuccessful applicants.

(2) Challenge existing power structure. It was considered important to raise awareness of the existing power structure within what is commonly called "the old boys' club", to develop strategies for working within this entrenched network, as well as for changing it, and to discuss gender related issues and difficulties created by that network.

(3) Raise awareness of gender issues in education. It was deemed necessary to discuss issues of gender equity in administration, and to use gender neutral language.

(4) Examine policies on gender equity. There is a need to examine the policies on gender issues at all levels of education within the province including the Department of Education, the school boards, the Alberta Teachers' Association and the Alberta School Boards' Association. This examination should include a definition of affirmative action in these areas.

(5) Support for rural administrators. Concern was voiced regarding the special difficulties faced by rural professionals. It was recommended that opportunities for upgrading of qualifications in rural areas be improved.

Girls in Schools

In the same way that societal expectations create barriers for women to become school administrators, girls are shortchanged by the educational system.

Girls are subjected to gender bias regarding their abilities as students, their opportunity to participate fully in the learning environment, and their dignity as human beings (Robertson, 1992). Evidence from various studies has been accumulating which shows that teachers tend to hold biases in instructional style favoring boys, that these biases are reflected in differential treatment of girls during instruction, and that very negative attitudes of boys towards girls are rampant in our schools. Girls are being subjected, increasingly, to sexual harassment, degrading comments, and humiliating experiences at the hands of boys without recourse to justice from teachers. Why is this happening in our schools and what can be done about it?

Ostling (1992) wrote that "there is compelling evidence that girls are not receiving the same quality, or even quantity, of education as their brothers". While many teachers and parents and the students themselves might deny this, the evidence from a number of studies shows that girls are being shortchanged. Sadker and Sadker (1985) observed 100 fourth, fifth and sixth grade classrooms in four American states and the District of Columbia. They found that boys dominate classrooms vocally. In most of these classrooms it was expected that children would raise their hands before speaking up; however, when boys called out answers without raising their hands the teachers usually accepted the answers. This was not the case for girls. When they called out the teachers told them to raise their hands, ignored their responses and went on to somebody else. This differential response to boys and girls by teachers gives the message that boys should be academically assertive and grab the teacher's attention while girls should act "like ladies" and keep quiet. Sadker and Sadker (1985) concluded that boys are taught more actively and that they get more attention and encouragement from teachers than girls. This conclusion is consistent with what junior and senior high school students in Edmonton had to say about what happens in the classroom:

> Ann Wilkes : I find that teachers ask the boys more questions.
>
> Craig Ross: I think guys dominate in the classroom because they are not afraid to make mistakes.
>
> Eddie Hughes: I would have to say mostly guys participate. The guys are more outgoing and ready to speak up in discussion (Faulder & Jimenez, 1992a).

The active and passive roles for boys and girls, respectively, in the classroom are self evident when boys set up equipment for science experiments and girls clean up afterwards, or boys dissect earthworms in biology while girls record results. Teachers tend to ask boys more difficult challenging questions and give them more time to think out the answers "The average female is ignored - neither reprimanded nor praised...so that girls learn that their opinions are not valued, that their responses to questions are not worthy of attention" (Shakeshaft, 1986, p. 499).

In spite of evidence that boys dominate classrooms girls don't appear to be aware of the discrimination that they may face in this regard. In a study of over 3,000 students in grades 8, 9, and 10 in Canadian schools Silverman & Holmes (1992) found that the great majority of girls (and boys) believed that students have an equal chance to do well in school irrespective of gender.

In some instances teachers make deliberate decisions about what to teach or how to teach it on the basis of perceived differences between boys and girls. Boys are considered to be more distractible and less mature than girls, and more likely to be disruptive influences. Here is what one teacher had to say "It's a bit harder to keep boys' attention during the lesson...at least that's what I have found, so I gear the subject to them more than I do the girls who are good at paying attention in class" (Clarricoates, 1978, p. 356). This attitude may be reflected in the kinds of books that teachers select for use in the classroom. Smith, Greenlaw & Scott (1987) asked 254 elementary teachers to list their favorite books to read in the classroom. When they tabulated the top ten books listed by these teachers they found that in eight books the main characters were male, in one book the main character was a female and in one book the main characters were both male and female. In all of these books the adult women were mothers and homemakers only, and the men were portrayed as self sufficient while the women were portrayed as neurotic, selfish and in need of assistance. The only admirable female characters were animals. The trend away from prescribed texts at the elementary level towards whole language approaches is likely to make it more difficult to correct this gender bias in the selection of literary materials used in the classroom.

The situation is not any better in high school. Galloway (1980) surveyed the books recommended in 42 language arts and literature courses offered in Ontario and found that eight times as many books were authored by males as by females. Furthermore male main characters in these books outnumbered females by the ratio of seven to one. Two-thirds of the female characters were created by male writers. Only one main character out of 24 was a female character from a woman's perspective. With this lack of exposure to strong and credible female characters it is not surprising, then, that women make up only 14 of 60 famous people selected by boys and girls when asked to list interesting or important public figures in Canada (Silverman and Holmes, 1992).

Teachers often hold prejudicial views of the abilities of girls relative to boys. Cooley, Chauvin & Karnes (1984) found that both male and female teachers viewed male students as more competent in critical/logical thinking skills and creative problem solving skills than girls. However, male teachers held more gender role stereotyped views than female teachers, believing girls to be more emotional, high strung and gullible, and less imaginative, curious, inventive, individualistic and impulsive than boys. Here is how one parent described the situation: "My daughter, an honors student...was experiencing difficulty in an honors physics class of ten students. Only two girls were in the class and when I contacted her teacher (a male), he threw up his hands and told me that girls were never good at physics! I wonder if part of the problem could have been his attitude and lack of understanding." (Reis, 1987, p. 85).

The stereotyping is particularly acute in science and math. Subtle messages abound that these areas are not suitable for girls. Recently a Barbie doll was introduced which could say, among other things, that "Math is tough". The doll was withdrawn from the market following intense complaints from consumers. Although girls can and do get good marks in math and science they tend not to choose math and science careers. Unlike the situation for boys there are few models available for girls in these areas. In junior and senior high most science teachers are men. For example, in the Edmonton Catholic schools only 42 of 540 elementary school teachers have science backgrounds (Faulder & Jimenez, 1992b). Girls need the support of teachers in order to stay with these programs. In 1989 one-third of all Alberta students in grade 12 physics or Math 31 were girls. These two courses are recommended in 29 of 34 University of Alberta Honors sciences courses (Faulder & Jimenez, 1992b). If girls are to stay with these programs it is recommended that teaching methods be adapted to the interest of girls. One such suggestion involves dealing with topics that both girls and boys are interested in. For example, instead of focusing on machines such as lawn mowers, chain saws or tractors that boys might be familiar with the emphasis might be shifted to hair dryers, sewing machines and hand mixers.

In Calgary, all-girls physics classes have been offered at William Aberhart High School for four years. In these classes, physics is made more relevant to the girls. The teacher (a male) adapts his instruction to include fewer examples involving cars in problem solving activities and more about textiles. (Faulder, 1992a). Because there are no boys to dominate class time the girls feel less intimidated about asking questions and less concerned about how they look in front of the boys. Statistics compiled by the teachers over the four years indicate that overall girls tend to do better in a female environment than in a mixed environment.

During adolescence girls experience an identity crisis that is different in some important respects from boys. Boys' social expectations are consistent with their gender roles. Individuality, aggressiveness, competition, independence, qualities which are encouraged in boys, are consistent with entry into careers. On the other hand, the social expectations of girls, such as the development of family orientation, intimacy, sensitivity, nurturance, and dependence, are inconsistent with these roles. Thus at adolescence girls are caught between the female roles which emphasize family and child rearing, and male-oriented work roles. Torn between two different sets of expectations, adolescent girls often develop feelings of frustration, discouragement, hopelessness and depression (Kline & Short, 1991). The scripted role which society requires of girls is to be quiet, pleasing and compliant, but girls, like boys, are curious, active and opinionated. "That tug of war between what society wants from girls and how they feel gives girls problems. They feel there must be something wrong with them because who they are isn't what sells." (Faulder, 1992b, p. A9). Many teenage girls experience a crisis in self confidence. Faulder (1992b) talked with more than 40 girls between the ages of 12 and 17 and followed them through a week of school. She found that "many girls are reluctant to speak their minds and lack faith in their own beliefs, feelings and points of view" (p. A1).

Even the brightest girls are more likely to feel inadequate about themselves. They are sensitive to the force of gender politics and to the controls that boys exert in the classroom and in social situations. They feel degraded when boys rate girls on characteristics such as looks or brains. They are aware of social stereotypes to be thin, pretty, wear nice clothes and have a boyfriend. It is difficult to make a conscious decision that they are not going to conform to the stereotypes (Jimenez, 1992).

Like everybody else in society girls are bombarded by the sexist messages in the media which portray females as slim, young, beautiful and sexual. This constant portrayal of females as sex objects is reflected in the harassment girls experience in school at the hands of boys. Girls are teased about their physical appearance, their body shape, their clothes. "If you're 'too fat or too ugly' a lot of kids just come up to you and call you names. Whale. Pizza face. Some kids get Clearasil ads tucked to their locker.... Boys actually spit on the girls they don't like. Because they're guys they think they can do what they want." (Faulder, 1992c).

Girls interviewed by Faulder (1992d) spoke of the hidden curriculum in junior and senior high schools which allows boys to ridicule and demean girls. "The hidden curriculum teaches boys and girls who's in charge, what behavior is sanctioned and what's taboo." (p. A1).

Girls report having to run the gauntlet to the washroom while boys rate the girls out of 10 as they go in. If the girls retaliate by rating the boys they get a reputation for being a 'bitch'. "The culture, and the school climate, give boys permission to act this way. Nobody appears to stop them or openly condemn their behavior. Girls learn to accept this as the way it is." (Faulder, 1992d, p. A4).

Because of this unfriendly climate girls are hesitant to talk about what happens in more serious cases of sexist behavior. A shocking account of a sexual assault in an Edmonton junior high classroom documented by Faulder (1992e) reveals how hesitant a 13 year old girl felt about going to the school authorities or her parents because of her fear that everyone would know and talk about it. "And in the end her worst fears were realized. Everyone knew. Boys would whisper 'slut' when she walked by in the halls. 'It went everywhere. It was hard...schools where they didn't even know me, they were saying I was a slut and must have done something to provoke it'" (Faulder, p. A5). There was no school assembly to inform students that this form of behavior was unacceptable and illegal; there were no lectures by health professionals, no workshops on sexual assault, no public mention of the incident. The whole thing remained an open secret.

Conclusion

In this paper, I have examined some of the role and access barriers to women teachers interested in administrative positions. Old stereotypes about the roles of women and men persist even though today a large proportion of women work outside of the home. These stereotypes place limitations on the expectations of women and result in the devaluation of work done by women. On average female college graduates earn about as much as male high school dropouts, and on the whole women earn only 60% of men's wages (Reis, 1987). Some athletes (chiefly males) earn as much in one year as the combined salaries of 175 school teachers (chiefly females), according to Delisle (1991). Changes in hiring practices and attitudes are necessary to make administration more accessible to women.

Changes in our school practices are also necessary to make the classroom climate a more friendly one for girls. Teachers need to look carefully at their own instructional procedures and their own personal attitudes towards boys and girls. There is no need to line boys and girls up separately when going outside, or to pit boys versus girls in spelling bees or math drills or to give girls in kindergarten kitchen centers frillier aprons than boys. Such segregation only reinforces stereotyped perception of differences between boys and girls in abilities and characteristics.

Our schools should not tolerate sexist comments or behaviors among our students either. It is simply not acceptable for girls to be subjected to demeaning and hurtful comments by boys about their abilities or their bodies. In the same way that we as a society are now addressing the problem of drunken drivers by making it socially unacceptable to drink and drive, we need to make it socially unacceptable for boys to harass girls in our schools. We need to talk about this problem openly, to consider alternatives for prevention, and to put in place appropriate procedures for dealing with unacceptable incidents. We also need to understand the identity crisis which girls in junior and senior high schools face and be prepared to help them academically, socially and emotionally through these turbulent years.

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